The Goulstonian Lectures

ON

THEORIES OF IMMUNITY AND THEIR CLINICAL APPLICATION.

Delivered before the Royal College of Physicians of London

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LECTURE I.[1]

Delivered on March 17th.

MR. PRESIDENT AND GENTLEMEN,—The first impulse—the natural impulse—of the Goulstonian lecturer for any year is to inquire what is known about his benefactor, what he did and what he accomplished. Meagre as are the materials for answering these questions there is one act of Dr. Goulston which will always be imprinted on the mind of his lecturer—I mean the expression of his desire that the lecturer should be chosen from among the four youngest Doctors of the Royal College of Physicians of London. The pleasurable sensation of an honour received, although unmerited—the ambition and failure to reach an ideal—even your youngest Doctor is already old enough to realise how much these sensations are inversely proportionate to age. For the opportunity of experiencing at once this feeling of pleasure, together with the sense of responsibility and want of success, I owe my obligations and thanks both to the memory of Dr. Goulston and Mrs. Goulston, and also to you, Sir, with the Fellows of this College.

In two more years three centuries will have passed since Francis Bacon, a contemporary of Dr. Goulston, published the "Advancement of Learning." His remarks on the state and progress of medicine in the seventeenth century were far from complimentary, yet we cannot deny their truth. But as some of his reproaches and advice guide the tenour of my lectures, expressing in finer and more interesting language than I can imitate the goal which we in the twentieth century are still trying to reach, I trust you will forgive my quoting freely from his words. He says: "Medicine is a science which hath been more professed than laboured and yet more laboured than advanced, the labour having been in my judgement rather in circle than in progression. ..... In the inquiry which is made by anatomy, I find much deficience: for they enquire of the parts and their substances, figures, and collocations; but they enquire not of the diversities of the parts, of the secrecies of the passages and the seat or nestling of the humours nor much of the footsteps and impressions of diseases. ..... And for the humours, they are commonly passed over in anatomies as purgaments, whereas it is most necessary to observe what cavities, nests, and receptacles the humours do find in the parts with the differing kind of humour so lodged and received. And as for the footsteps of diseases ..... they ought to have been exactly observed by a multitude of anatomies and the contribution of men's several experiences. ..... I will not doubt to note as a deficience that they enquire not the perfect cures of many diseases, or extremities of diseases, but pronouncing them incurable do enact a law of neglect, and exempt ignorance from discredit."

It is "the humours, the footsteps of disease and perfect cures" and their relations to one another which I shall attempt to describe, for within this triangle lie the theories of immunity and their clinical application. A little further on Bacon says: "They be the best physicians which being learned incline to the traditions of experience, or being empirics incline to the methods of learning." Fifty years later Sydenham, the English Hippocrates, was following these precepts and since he first struck out on the path of healthy empiricism English medicine has never left it. There can be no doubt that bedside and laboratory medicine must go hand-in-hand; at one time the eye or ear, at another the microscope or test-tube, may first descry the new disease—its manifestations or its cause. The correlation between bacterial cause and clinical symptoms is not always very evident and some sceptical spirits are disposed entirely to deny such relation. On the other hand, there are also some minds who fulfil Cicero's dictum concerning the unscientific thinking of the physician of his time: "Medici causa morbi inventa curationem inventam putant," substituting for "medici" the word "bacteriologici." It is not unreasonable to hope that some day finding the cause will mean also finding the cure, but that goal is not yet within sight. By good fortune it has occasionally been possible in the past to find a cure whilst we were yet ignorant of the cause and I trust that this may be so for still some time to come. But it is certain that without a knowledge of the cause we cannot explain or intelligently anticipate the symptoms of disease and the treatment can only be empirical; successful empiricism based on long and accurate experience it may be, satisfying perhaps to the patient and to mankind in general, but to the thoughtful physician unsatisfactory to a degree. He has also the disconcerting knowledge, based on his experience, that some day, unexpectedly, this empirical treatment will fail him. There is, then, every reason for trying to make disease and remedy premisses of the same syllogism the conclusion of which is health. The modern theories of immunity—and in particular that of Paul Ehrlich—based as they are upon ingenious and imaginative experiment have brought us appreciably nearer to a rational etiology and rational therapeutics of infective disease. I hope to show you that they have done even more than this and will do yet more. As on the Indian juggler's ladder, the topmost rungs are out of sight—heavenwards.

It would be unfair and ungracious to pass over entirely in silence the work of those far-sighted men, both clinicians and scientists, of the past and the present generations who in their mind's eye saw and expressed in prophetic language some of the achievements of to-day. Their thoughts will form convenient steps for us to follow.

At the latter end of the eighteenth century Hufeland, the celebrated physician of Berlin, published his "Ideas on the Pathogenesis and Influence of Vital Force on the Origin and Form of Diseases." Speaking of "contagium vivum ..... an animal material, a special product of pathological-animal chemistry," he observes, amongst other more or less vague and erroneous statements, that "the contagious or infecting power of disease is relative, both as regards origin and effect. In origin because it depends on the degree of putrefaction and constitution of the subject suffering from the disease. As regards effect on other conditions, for here it depends on the susceptibility of the other for the reception of the contagium. Therefore the same disease may under certain circumstances and in certain subjects become contagious (e.g., consumption of which it is known that in Italy it is reckoned among the infectious diseases, with us it is much less so) while under other circumstances and in other subjects it is not so, so that a disease may act contagiously on one man and not on another."

Half a century later these vague ideas, illuminated by subsequent observations, were brought to a focus by the logical mind of Henle. He showed by methods of argument and experiment akin to that of modern bacteriological investigation that scabies must be due to, and its transmission effected by, the *Acarus scabici*. "Scabies cannot be transmitted by means of the matter from itch-pustules, nor by freshly killed and pressed itch-insects; it cannot be transmitted by the male but only by the impregnated female; the male causes a few local blisters, but scabies becomes a general and chronic skin disease only by the propagation of the insect on the infected body." "The disease produced by a parasite which is communicated by accidental or intentional transplantation of the parasite is on that account infectious or contagious; the specific parasite is the infectious material or contagium of these diseases." Henle fought against the prevailing hazy and mystical conceptions of contagion, prophetically remarking, "I am firmly convinced that this is the way to condemn the doctrine to eternal darkness"; and, indeed, not until this path was abandoned did the doctrine again emerge from obscurity and itself become a source of light. Henle went even further and discussed the bearing of disposition of the host and the possibility of the production of a poison being

[1] Lecture II. was delivered on March 19th and Lecture III. will be delivered on March 24th.

the essential property of micro-organisms, thus anticipating many so-called modern ideas of infection.

Of the clinicians Bretonneau and his pupil Trousseau were among the first to recognise specificity in disease and to overthrow the teaching of their time. For the schools of Brown and Broussais were then still dominant, schools which allowed only quantitative differences in diseases producing similar symptoms. To them cholera, typhoid fever, and ordinary intestinal catarrh were merely different manifestations of the same disease. Trousseau devotes two lectures to the "specific element in disease and contagion," interesting and fascinating reading like all Trousseau's work, even to-day. Permit me to quote some of his anticipating words: "There are two factors: one is the morbific germ coming from without and the other the economy about to receive it; ..... there is required a special aptitude of the organism to respond to the action of the stimulus. ..... When there is no such predisposition the morbific germ perishes."

But from this time onwards there was a parting of the ways until now when they are once more coming together. The fault lies largely with the bacteriologists, especially in Germany, for they, in spite of Virchow's warning, until recently refused to take predisposition and susceptibility properly into account. On the other hand, the physicians have not been entirely blameless. Sir Thomas Watson has more to say on predisposition than on specificity in disease and even his fine instinct led him so far astray as to deny the infectivity of phthisis. To-day ideas of immunity and infection are so bound up with one another that an explanation of one carries with it the reason for the other But this was not always so. In bygone ages immunity was the prevalent idea and applied only to mineral and vegetable poisons. In recent times it has been limited largely to immunity against bacterial (vegetable) infection In the future it will include both these and also immunity to cellular animal infection. Nay, more; if pushed to the limits it would appear that immunity is merely a special instance of the evolutionary laws concerning adaptation to environment. But this is an altruism not yet capable of proof and we must return to palpable experimental facts and their meaning.

Immunity may perhaps be defined simply as the power to resist infection. Metchnikoff thinks it at present impossible to give a more precise definition of immunity to infectious disease than "the complex of phenomena by which an organism can resist the attack of the specific pathogenic microbes," and the resistance, we may add, to their products. So far as I know Ehrlich, perhaps wisely, refrains from any definition.

The two chief theories of the present day are those promulgated and supported by Metchnikoff and Ehrlich respectively. Originally opposed to one another, like the humoral and iatro-chemical theories of the Middle Ages, they are really only rays of light refracted at different angles from the same source of light and will ultimately be made to fuse into one brilliant cellulo-humoral theory of immunity. Not that we can accuse the upholders of the modern humoral theory, as we could their predecessors of a period of bacterial supremacy, of neglecting the fundamental ideas of cellular pathology; it is merely a question of distribution. While, on the one hand, Metchnikoff and his school believe that the white cells directly attack the invading bacteria Ehrlich and his followers have laid more stress on the constituents of the body fluids. But even they regard a bacterial toxin as poisonous only in the form of a chemical combination with a cell constituent. If the cell does not possess this constituent the bacterial toxin is innocuous—the cell possesses a natural immunity. On the other hand, these cell constituents coursing in the blood are the protective bodies and they have had their origin in the cells. As Behring tersely puts it, "that substance in the living body which, when situate in the cell, is a preliminary essential to the toxic process becomes a curative agent when it enters the blood stream." To take a very gross illustration: Suppose a ball of cotton-wool to have wrapped up in it some small lumps of sodium carbonate and immersed in an acid fluid. There will be an evolution of gas in the ball and it will be partly disintegrated. If the ball had previously secreted these lumps the chemical reaction would have gone on outside.

There are only two theories which we need consider at all in detail, but before attempting an exposition of these theories it will, I think, be better to describe a few of the phenomena of immunity and then to proceed to the explanations put forward. The spirited contest between the exponents and their partisans of these two rival theories has led to the most ingenious and interesting experiments of modern biological investigation.

Immunity may be either congenital or acquired. When congenital true infection for particular disease is impossible. Into the explanation of this phenomenon we shall inquire later. This form of immunity is always natural. Acquired immunity may be either active or passive. By active immunity we understand that acquired either by an attack of the disease, in which case it is natural, or by inoculation, when it is artificial. In both instances a process of what may fairly be termed infection occurs. Passive immunity is produced by the introduction into one organism of the products of active immunity in another. By the injection of the products of active immunity against diphtheria from the horse into the human subject the latter becomes passively immunised against the disease. But infection itself is not of a single kind and immunity will vary with the nature of the infection. The action of some infective agents—e.g., the tubercle bacillus and the leprosy bacillus—is largely mechanical; they produce fibroid and degenerative changes in the tissues which they attack. Others when introduced into the body do not multiply extensively but remaining at the site of inoculation perform their malignant functions by secreting poisonous substances to enter the circulation. To this group belong diphtheria and tetanus. Yet others are capable of multiplying in the tissue as well as producing poisons and so exert their influence in both ways.

A suitable soil is essential for many bacteria. Introduced beneath the skin the comma bacillus is comparatively soon destroyed, but if put into the alimentary canal it produces cholera. Cutaneous infection with bacillus anthracis produces severe illness, but taken into the alimentary canal it is practically harmless. The tubercle bacillus by whatever route it may enter the body can settle, multiply, and produce its specific lesions. It must be remembered that the mere presence of a specific bacillus is not evidence either of infection or immunity of the organism in which it is found, for the tubercle bacillus has been found in the sputum, the typhoid bacillus in the fæces, and the diphtheria bacillus in the throat of healthy persons. Both are relative terms; there is no certain infection or absolute immunity. Infection, then, may be due chiefly either to the micro-organism or its products. Corresponding to these two modes we can distinguish two classes of immunity—viz., a bactericidal and an antitoxic immunity. Again corresponding to these distinctions we find a variable duration of immunity; it may be only for months or it may be for years. It may be slight or nearly absolute; and finally it may be either individual or racial.

Let us now consider the two chief theories put forward to explain the phenomena of immunity, and taking them in their historical order commence with that of Elias Metchnikoff.

Metchnikoff was originally a zoologist who, as he himself tells us, has "strayed into the domain of chemical biology and of medical science," and his theory is essentially that of a zoologist. I should like to make it clear that I say this in no depreciatory sense. On the contrary, nobody, I hope, can be more alive to the interdependence of the several sciences and particularly of the dependence of the science of medicine—I say advisedly the science, not the art, of medicine—on the sister sciences. It is rather with the object of directing attention to the way in which a theory based on the broad principles of cellular biology has been applied to the special problems of disease as contrasted with another theory which, starting from the comparatively narrow basis of disease, is finally found applicable and pertinent to many wide biological problems. The starting-point of Metchnikoff's theory was the observation that the protozoa habitually ingest and digest bacteria, whether pathogenic or no—that the bacteria form for them an important aliment. On the other hand, the more highly developed organisms with a digestive tract are unable to digest bacteria, but when they enter the circulation, unless they are pathogenic, they disappear, and not by way of the kidneys unless the latter are injured. Passing up the line of increasing complexity of organisation we find these large cells at first distributed in the alimentary canal or along the external surface of the organism, until finally they are confined to the blood stream. The blood of the invertebrates contains but a single kind of amœboid cell; in the

vertebrates, especially warm-blooded vertebrates, there are two kinds, which Metchnikoff designates as macrophages and microphages respectively. They correspond to what the ordinary nomenclature calls large mononuclear leucocytes and the smaller polymorphonuclear white cells. On the introduction of any foreign matter, whether bacteria, metallic granules, or even sterile fluids, into the organism, its leucocytes leave their normal habitat, and, passing through the vessel walls, go to the attack, and often to the annihilation, of the intruder. Having surrounded and engulfed it, where possible, they then proceed to digest it. But when the foreign body is organised, the particular kind of leucocyte to lead the attack will vary according to the nature of that body. The macrophages, as befits their larger, slower, and more unwieldy character, have, according to Metchnikoff, a preference for animal cells—e.g., xanthocytes; for the bacteria of chronic disease—e.g., tubercle and leprosy; and for the malarial and other analogous parasites. The microphages, on the other hand, show a preference for the micro-organisms causing acute disease. The phagocytic theory was in this crude condition in 1888 when Nuttall discovered the bactericidal action of serum and it received further blows by Behring's discovery of antitoxins in 1891 and Pfeiffer's finding of the bacteriolysins in 1894. But Metchnikoff has managed with considerable ingenuity to adapt his theory to these new factors and with much facility to abandon the purely mechanical explanation at first afforded by his theory.

But since the modifications of Metchnikoff's theory and many of the experiments performed to support them are due to the evolution and development of Ehrlich's theory it will be well to consider the two theories side by side, or, rather to see what explanation is afforded by Metchnikoff's theory of Ehrlich's facts.

Ehrlich's theory is really an outcome of his investigations into the nature of toxins and antitoxins. He had early shown that as regards immunity similar results might be obtained with vegetable poisons to those obtained with bacterial toxins, also that the immunity obtained was to a large extent specific. In his experiments in 1891 on feeding and injecting animals with ricin he obtained from them a serum which protected other animals from a lethal dose and the immunised animals showed no reaction on solid ricin being applied to the conjunctiva. Yet on instilling a dilute (1 in 10,000) solution of abrin violent inflammation resulted, showing that the immunity existed for ricin only, or, at any rate, had not been produced against abrin. By performing his experiments in a test tube outside instead of inside the body Ehrlich was able to show that the reaction is chemical and follows chemical laws. He showed that for the agglomerating action of ricin on xanthocytes[2] vitality in the corpuscles was not essential, that the action could be inhibited by the addition of serum from a ricin-immune animal, and that the relative proportion of ricin and serum required to form such a neutral mixture remained constant.

But the real starting-point of Ehrlich's side-chain theory was his laborious investigation for the standardisation of diphtheria toxin. Certain anomalous results occurred. The standardisation of the various samples of toxins was done with a standard serum. To a quantity of this serum able to neutralise 100 lethal doses were added successive quantities of toxin until two limits were obtained—one in which so much toxin was added that the antitoxin was just neutralised and the other in which there was just so much excess of toxin as to produce death in the test animal in four days. Ehrlich found, firstly, that of various toxins a quantity less than 100 lethal doses often neutralised the standard quantity of antitoxin and, secondly, that the excess of toxin required to be added to the neutral mixture was more than one lethal dose. In order to explain this anomalous phenomenon Ehrlich assumed and finally proved the existence of a modification of the toxin, the "toxoid" which is nearly non-poisonous but is nevertheless capable of uniting chemically with the antitoxin. The toxoids may again be subdivided into three groups according to their affinity for the antitoxin, which may obviously be either greater (protoxoid), equal (syntoxoid), or less than (epitoxoid) that of the toxin. When the affinity is less than that of the toxin to the antitoxin it is obvious that the epitoxoid will first be set free in the mixture and until they are all set free no toxin will be free, so that the difference between a neutral antitoxin + toxin mixture (L_0) and one just killing (L_+) will be several lethal doses. Ehrlich makes the following chemical comparison:—

100 (epitoxoid	+	antitoxin)	+	100 (toxin + antitoxin)
100 $NaCH_2COOH$			+	100 NaCl.
Add 101 units	:	101 epitoxoid	+	101 toxin,
		101 CH_2, COOH	+	101 HCl;
We get 200 NaCl	+	201 CH_2, COOH	+	1 HCl.
(toxin + antitoxin)		(epitoxoid)		(toxin)

—viz., the difference between L_0 and L_+ is enormously increased by the presence of the epitoxoid. The modification from toxin into toxoid may be brought about in various ways and is perhaps comparable to the allotropic change occurring in the case of phosphorus. When a toxin is kept some alteration takes place and its toxic power diminishes; it may apparently occur also by the action of high-frequency currents on toxin solutions. Since the toxoids are not only capable of producing immunity, but are also very much less poisonous, there may be some hope for the clinical treatment of diphtheria and tetanus within the solenoid by the conversion of toxin into toxoid within the living body.

Having shown that the union of toxin and antitoxin occurs in fixed ratios, more rapidly in concentrated solution and in the warm, &c., Ehrlich deduces the following conclusions: "The capacity of the toxin to saturate the antidotes must depend upon a specific atomic group of the toxin molecule, which group must have a maximal specific relationship to a definite atomic group of the antitoxin molecule, the one fitting easily into the other as a key into a lock, in the same manner as Emil Fischer has explained the specific action of ferment." Various observations tend to verify this statement. Thus tetano-toxin affects primarily the cells of the central nervous system and Wassermann showed that by previously mixing the toxin with an emulsion of brain substance it was neutralised. The affinity was specific: emulsions of other organs were devoid of action. It appears most reasonable to assume that such specific atomic groups of antitoxin pre-exist in small numbers and that their saturation by the toxin affords a stimulus to the cell for their reproduction. As Ehrlich says: "In the course of a typical process of immunisation the cell becomes trained, so to speak, to produce the specific side-chains in large quantity. In such processes of regeneration, not compensation, but hyper-compensation is the rule, and with the enormous increases of the poison dose a point must be reached when there is such an excess of side-chains that the cell is surfeited and casts them off as useless ballast into the blood." "If, on the one hand, the presence of such receptive side-chains is a necessary condition for the occurrence of the toxic process this circumstance also explains in the most simple way the production of the antidotes.[3]" The existence and formation of the toxoids he explains as follows: "One must assume in the toxin molecule two independent atomic groups. One of these is haptophore and brings about the union with the antitoxin or the antitoxic side-chains of the cells. The other atomic group is toxophore—viz., is the cause of specific toxic action." The toxophore group is unstable and easily decomposed; with its decomposition the toxin is converted into the toxoid. The union of the haptophore group with the cell side-chain enables the toxophore group to act on the cell through the bridge thus formed; when the side chain is circulating in the blood and becomes attached to the toxin molecule there is no cell on which it can exert its toxic action: it is neutralised. There is further evidence in support of this view. It is possible to immunise with toxoids alone Since by hypothesis their haptophore group should be able to unite with the cell side-chain quite apart from and without the lost toxophore group, this result is quite in accordance with theory.

Starting from this central point it has been possible to explain a number of biological phenomena by similar reasoning and similar experiments, which in their turn confirmed the correctness of the original theory. Pfeiffer's phenomenon gave the stimulus for this series of investigations. Already before Pfeiffer's observation the bactericidal power of normal serum and its property of dissolving xanthocytes of other species, together with the loss of this power on heating to 56° C., had been observed and recorded. The increased bactericidal power of the serum of an animal immunised against cholera without any antitoxic power was also known. Its bacteriolytic

[2] Vide Sherrington, Brit. Med. Jour., 1901, p. 742.

[3] I use this word instead of the hybrid enormity, "antibody."

property was yet unknown. Pfeiffer found that either by the simultaneous intraperitoneal injection of a lethal dose of cholera vibrios, together with the serum of an immunised animal, or by the injection of the cholera vibrios alone into the abdominal cavity of an immunised animal, the micro-organisms lost their motility, became spherical, and then underwent a granular degeneration, while the animal survived (Pfeiffer's phenomenon). It was shown by Fränkel and Sobernheim that this result obtained also if the immune serum had been previously heated to 56° C. and its bactericidal power consequently destroyed. It follows that if the bactericidal substance plays any part in this reaction it must be supplied from the blood of the animal subjected to the experiment. Bordet proved that two substances contributed to Pfeiffer's reaction by showing, firstly, that it occurred *in vitro* and, secondly, that if the bactericidal property of the immune serum were destroyed by first heating it to 56° C. the bacteriolytic action could be restored by the addition of a small quantity of normal serum.[4] By similar experiments, using xanthocytes instead of bacteria for immunisation, Bordet was able to show that the hæmolytic power of the immune serum was destroyed by heating and could be restored by the addition of normal serum which by itself possessed no hæmolytic properties.

In order to extend his theory of the formation of antitoxins to that of hæmolysins Ehrlich made a long series of experiments. He recognised, of course, that Bordet was right in assuming the existence of two bodies for the production of the phenomenon and that one body (mediator, amboceptor) was present in quantity in the serum of immunised animals only, while the other (the complement) occurred in the serum of normal untreated animals. He reasoned that if the hæmolysin were formed in a similar way to antitoxin, then it ought to be saturated and neutralised by the addition of xanthocytes which would correspond to the toxin in an antitoxin mixture. This was proved to be so by taking the serum of a goat immunised against sheep's blood, heating the serum to 56° C. to destroy its hæmolytic power (by the destruction of the complement), and then adding to it sheep's xanthocytes. After standing awhile they were again separated by centrifugalising. If the mediator had united with xanthocytes then on the addition of normal serum to the corpuscles hæmolysis ought to occur. This was found to be the case. On the other hand, if the mediator had been removed from the immune serum, then on the addition of fresh normal serum and xanthocytes to it no hæmolysis of the latter should occur. Nor did it. This proved, as Ehrlich says, "that the amboceptor possesses a specific haptophore group which binds it to the xanthocyte, as required by the side-chain theory." On the other hand, if to normal goat's serum, which contains the second body, the complement, there be added sheep's

[4] It will be convenient to note here that a serum deprived of such a property by heating is called an inactivated serum and when this property is restored a reactivated serum.

xanthocytes, then, if they were capable of binding the complement, on centrifugalising off the xanthocytes and adding fresh xanthocytes and mediators to the removed supernatant serum, no hæmolysis should occur. But it does, showing that the complement has not united with the xanthocytes. Moreover, if xanthocytes and immune serum be mixed as before, but kept in the cold, no hæmolysis occurs. On centrifugalising and treating the xanthocytes as just mentioned one can prove that the amboceptor has united with the xanthocyte, but not the complement with the intermediary body. Since the interposition of the amboceptor is thus shown to be essential Ehrlich concludes "that the amboceptor has two different haptophore groups: one having a great affinity to the corresponding haptophore group in the xanthocyte and a second haptophore group of less chemical energy which can attract more or less completely the complement present in the serum."

Since the action of the complement produces effects which with Pfeiffer we must regard as analogous to digestion, we shall probably not be far wrong in regarding the complement as possessed of the properties of a digestive ferment. Taking a familiar illustration—in which, however, the characters are really reversed—we may regard the pepsin in an artificial digestion mixture as the amboceptor and the acid as the complement. That is, the pepsin is the special factor, like the amboceptor occurring only in the immune serum, while the acid which may, as we know, be either hydrochloric, or sulphuric, or oxalic, &c., corresponds to the complement to be found in a variety of sera. The lock and key simile of E. Fischer affords perhaps the best analogy. The lock is the cell, the key is the amboceptor, and the hand which turns the key is the complement. As a rule but one key (or at most a few similar ones, a small number compared with all) will fit a given lock. But nearly any hand, it may be of a monkey or performing dog, can turn the key in the lock. The same explanations hold good for the action of the agglutinins—viz., those substances in immune sera which cause agglutination of the corresponding bacteria; and for the action of the precipitins—viz., those substances in immune sera which cause precipitation when added to the fluids or solutions of substances used for immunisation. In the case of milk they have been called coagulins.

I shall return later to these particular substances. It will suffice here to point out that their occurrence led Ehrlich to expand his hypothesis and to apply it to explain also the normal processes of food assimilation. The formation of antidotes to normal food-stuffs is quite analogous to the formation of antitoxins to toxins, so that the generation of antitoxins "is only a reproduction of a process in normal cell-life." Ehrlich believes that the proteid molecule of a food becomes attached to one group of the cell receptor, while the other group is already occupied by a ferment (the complement) molecule to make the food-stuff assimilable. In this respect the receptor is more complicated than that for the toxin which has only one group, but is less complicated than that concerned with the formation of hæmolysins, cytolysins, &c. In the last instance separate groups are required for union with the broken-down bacteria or xanthocytes and for the complement circulating in the blood stream. This can be most easily explained by reference to the diagrams (modified from Ehrlich) and to the models.

ROYAL NATIONAL PENSION FUND FOR NURSES.—The annual meeting of the members of this society, of which Her Majesty the Queen is the President, was held on March 12th at River Plate House, Finsbury-circus, E.C. Sir Henry Burdett, K.C.B., the deputy chairman, presided in the absence of the chairman, who is abroad, and moved the adoption of the report for 1902. In the pension branch the number of policies issued was 869, as against 842 in 1901. Progress is shown in the work of the annuity branch. At the end of 1901 there were 339 annuitants holding 500 policies, while on Dec. 31st, 1902, there were 415 annuitants under 598 policies, and for the December quarter annuities were being paid out at the rate of over £8000 a year. The amount distributed in sick pay was £1568, as against £1633 in 1901. The percentage of expenses to premium income—3·26 per cent.—was lower than it had been in any previous year and considerably below the average for the past five years, which is 3·56 per cent. The total funds increased during the year from £648,725 to £734,182.

ABSTRACT OF

The Hunterian Lectures

ON

SOME POINTS IN THE ANATOMY AND PATHOLOGY OF THE VERMIFORM APPENDIX.

Delivered before the Royal College of Surgeons of England on March 9th, 11th, and 13th, 1903,

BY W. McADAM ECCLES, M.S. LOND., F.R.C.S. ENG.,

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LECTURE III.[1]

Delivered on March 13th.

MR. PRESIDENT AND GENTLEMEN,—Recently the association of appendicitis with joint lesions has been brought before the notice of the profession by several observers and arthritis as a complication or sequela of appendicitis is worthy of further investigation.

THE ASSOCIATION OF APPENDICITIS WITH JOINT LESIONS.

Any infective process in the body may be associated with secondary affections of the synovial cavities. The arthritis of gonorrhœa and that of scarlet fever are two only of many instances which may be cited in this connexion. It is therefore self-evident that in the infective processes occurring in the appendix there will be a liability for a similar condition to supervene. Whether, however, this should be spoken of as a rheumatic affection is quite another matter. I have previously stated that I believe all cases of distinct appendicitis are dependent upon the action of micro-organisms. If ordinary articular rheumatism associated with cardiac lesions in many instances is in reality due to the invasion of a specific diplococcus, then there is no doubt but that it is possible for this organism to infect the lymphoid tissue of the appendix in much the same way that it does the adenoid tissue of the palatine tonsils. I am unaware, however, of any case in which an excised appendix has been shown to be infected with this coccus, so recently described by Dr. F. J. Poynton and Dr. A. Paine.[2]

Personally, in the somewhat rare cases in which definite joint lesions are associated with inflammation of the appendix, I look upon the arthritis as wholly secondary to the appendicitis, of the nature, perhaps, of a subacute pyæmia, rather than that both joint affection and appendix inflammation are coincidently due to the same general infection. It is true that the colon bacillus may induce an arthritis which has many of the characteristics of that of ordinary rheumatism, but it is more common in such cases to find that the fluid formed within the joints is sero-fibrinous, semi-purulent, or even well-marked pus. A practical outcome of this view of the condition is that if there be a source of infection in the appendix the sooner this is removed the safer for the patient.

INFLAMMATION OF THE APPENDIX ASSOCIATED WITH PREGNANCY AND PARTURITION.

The association of appendicitis with pregnancy and parturition is one of the gravest import and one which is by no means uncommon. That a woman who has suffered from an attack of appendicitis and has not had the organ excised runs an enormous risk if she becomes pregnant is now coming to be a well-recognised fact. It is difficult to judge whether the occurrence of the pregnancy is a factor in the lighting up of the inflammation in the appendix, but it is equally certain that such an inflammatory condition commencing during pregnancy or after parturition has up to now been attended with often fatal results. This unhappy termination, I think, in many cases is due to a want of early recognition of the lesion and of its prompt surgical treatment.

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[1] Lectures I. and II. were published in THE LANCET of March 14th, 1903, p. 703.

[2] Transactions of the Pathological Society of London, 1901, p. 10.

Appendicitis occurring during pregnancy.—Inflammation of the appendix may supervene at any period of pregnancy. Appendicitis is graver in its prognosis the longer pregnancy has been in existence. It will lead frequently to the death of the fœtus or of the mother and fœtus. In the early months of pregnancy there is often some disturbance of the digestive system and constipation is not uncommon, for constipation is very frequent among women and pregnancy aggravates it. It may be that these troubles have a bearing on the incidence of appendicitis. The history of a previous attack of inflammation of the tube is always of great importance in arriving at a correct diagnosis, but a primary attack may show itself in a pregnancy. There can be little doubt that if signs and symptoms of appendicitis show themselves in the first three months of pregnancy the safest course is to treat the case as if it were one in which no fœtus resided within the uterus—that is, to deal with it surgically. At this early stage of pregnancy abortion is not a serious complication of an operation upon an appendix, but to delay surgical interference in the appendicitis of early gestation because of the possibility, or even probability, of abortion is to subject the patient to a very real and very serious risk. When, however, inflammation of the appendix does not show itself until after the uterus has risen out of the pelvis, and especially in those instances in which the appendix lies over the brim of the pelvis, a much more complicated condition necessarily ensues. It is then that the uterus approaches the dangerous region near the appendix and renders it likely that its own serous covering may in part form the wall of an abscess cavity connected with the diseased organ. From this will easily be seen the extreme danger of the condition.

As to the diagnosis of appendicitis in pregnancy from the fourth month onwards the difficulties are distinctly increased. The presence of the enlarged uterus, the want of softness of the abdominal walls, and the symptoms, such as vomiting and constipation referable to the pregnant state, are all obstacles to a conclusive decision as to the exact site of the inflammatory mischief. Here, again, the history of a previous attack is of the greatest assistance. I am chiefly inclined to rely upon the sudden onset of the symptoms, the marked rigidity of the right rectus, and the early localisation of the pain in the right iliac fossa. A rapid rise of temperature with a quickened pulse-rate, vomiting, the discovery of nothing definite by a careful vaginal and rectal examination, and the presence of leucocytosis are all aids to a correct diagnosis. But it is safer in a really doubtful case to assume that inflammation of the appendix is present than to temporise and to delay an exploration until too late. The all-important question is the one of treatment after a diagnosis has been arrived at.

Miscarriage or premature labour is almost certain to occur and with it arises the chief danger of the condition both with regard to the mother and the child. Seeing that this complication is almost inevitable the treatment must be directed so as to minimise the danger attending it. As in appendicitis occurring in the male or the non-pregnant female the line of action may be non-operative or operative. From the record of published cases, and probably still more from those that remain unpublished, the results in those instances in which the inflammatory condition has been allowed to progress to perforation or gangrene of the appendix and to suppuration around it have in at least 70 per cent. been disastrous, both mother and child dying. It would therefore seem to be rational and wisest to operate upon all cases of even suspected appendicitis in pregnancy at the earliest possible moment, disregarding the fact of the gravid uterus and dealing with the appendix. If the uterus does empty itself it will do so with much less danger if there is no abscess cavity in proximity to it, and although the life of the child will probably be sacrificed that of the mother may be saved. Further, supposing the uterus retains its contents there is good hope for both mother and child. Seeing that the termination of expectant treatment, even supposing the pus finds its way into the bowel, is so uncertain and so fatal, it can hardly be worse from prompt surgical interference and might be a good deal better.

With regard to the suggestion that the uterus should be made to discharge its contents by artificial interference before an operation on the inflamed appendix is undertaken, I cannot see what benefit can accrue from such a proceeding. If an operation is performed without the uterus being emptied previously, the child's life may be saved. If pus should have formed it is possible, and even probable, that the alteration in the position of the uterus, consequent upon its contraction, may tear down adhesions and flood the peritoneal cavity with the septic fluid. If, on the other hand, the abscess cavity is opened and even merely flushed out there will be less danger of general infection than if the uterus subsided with pus pent up under tension. There should be no need to have to empty the uterus artificially if the condition of the appendix is diagnosed and treated early.

Appendicitis occurring during the puerperal state.—Appendicitis manifesting itself after parturition is somewhat different in its course and in its termination to that occurring during gestation. It is possible for the condition to be in evidence, or latent, during the last few days of pregnancy, and for it to be fanned into activity by the disturbance caused by delivery. A woman with a diseased appendix, as, for instance, when the organ contains a calculus and lies over the brim of the pelvis, is placed in distinct danger of an acute attack soon after the commencement of the puerperium. The condition is then most apt to be mistaken for a septic condition dependent upon infection of the interior of the uterus, but there are several signs which should serve to distinguish the appendix inflammation from the uterine sepsis. The lochia remain sweet, vaginal examination may reveal nothing abnormal, pain localises itself to the right iliac fossa, intra-uterine douching does not effect any lowering of the temperature, marked leucocytosis may be found, and a history of previous attacks may be gleaned. The prognosis is not so grave as in the cases of appendicitis complicating pregnancy, but it is sufficiently serious to make the cases very anxious ones to the medical attendants and friends. I consider that each case should be treated on the lines that would be considered best if the condition was not complicated by a recent delivery.

APPENDICITIS IN RELATION TO LIFE INSURANCE.

There can be no doubt that as the medical examiner is becoming more and more inclined to look upon the history of pleurisy in a proposer as one very suspicious of tubercle, so he will be likely to regard the vague term of "inflammation of the bowels" or even the still more common "bilious attacks" as possibly indicative of recurrent appendicitis. It is extremely difficult to arrive at any degree of accuracy as to the death-rate from appendicitis, but that in the present day it really is the primary cause of a large number of deaths assigned to "peritonitis," "inflammation of the bowels," and other such lesions there can be but little doubt. Hernia is practically always inquired about in a proposal form, but a question seeking information as to the occurrence or not of signs or symptoms of appendicitis is hardly if ever put; and yet I venture to think—and here, again, it is difficult to prove—that the latter lesion produces a death-rate far in excess of that of the former. Then, again, it is important to remember that appendicitis is a disease affecting particularly young adults, and especially the male sex, just the particular class of person most usually seeking to become insured. Against loss by death from a primary attack of inflammation of the appendix it is probable that insurance offices cannot be protected, but as a precaution all examiners should pay careful attention to intestinal history which is at all suggestive of an attack even if this is very indefinite. I am sure in any suspicious proposal it is of great importance to weigh the habits of the proposer in respect of diet, hurried meals, and action of the bowels and also the condition of the teeth.

Given, on the other hand, a proposer in whom a fairly definite attack of inflammation of the appendix but without operative treatment has occurred, what is to be the attitude of the medical examiner in expressing his opinion as to the eligibility of the life? It is here that extremes meet. Some would refuse to accept unless the appendix has been removed, others would pass without loading provided that two years had elapsed since the attack. Personally I am inclined to load, say with seven to ten years extra, most cases in which an attack of appendicitis has been diagnosed and the appendix remains *in situ*. It is well known that although a first attack which is recognised may be apparently a very slight one, yet the second may lead to the death of the sufferer. On the other hand, a case in which the appendix has been removed and the scar resulting is sound may be accepted at the ordinary rates six months after the laparotomy. When there has been more

than one attack I should not pass the proposer unless the appendix had been successfully removed.

Then there are those cases in which an abscess has formed and has been drained without the removal of the appendix. If relapse was common in these conditions it would be again necessary to charge an extra premium, but second attacks are distinctly rare, some 3 to 4 per cent. being probably about the proportion. Moreover, when a relapse does occur it usually takes place within the first year after the suppuration. Thus, other things being equal, the life may be accepted provided there have been no secondary signs for two years following the drainage.

NEW GROWTHS OF THE APPENDIX.

New growths of the appendix are rare. They may be innocent or malignant.

Innocent new growths are extremely rare. Examples have been recorded of lipomata, myomata, and lymphadenomata. I have been unable to find actual specimens of these conditions. Deaver[2] records two instances of fibro-myoma of the appendix. One was from a patient, the subject also of fibro-myomata of the uterus, and both organs were removed at the same operation. The appendix presented two fibroid growths, each of which was spheroidal in shape and about five millimetres in diameter. One was situated at the mid-point of the appendix opposite the attachment of the mesentery, and the other towards the tip of the organ within the mesenteric attachment. They projected somewhat from the surface of the appendix and each was well circumscribed, surrounded by a rather dense capsule, and was firm to the touch. On section they were whitish and glistening and revealed a fibrillar structure. One was much harder than the other—being of almost stony hardness—and cut with a grating sensation. The wall of the appendix elsewhere was much thickened and the lumen was much constricted. The mucous membrane appeared smooth and atrophic. On microscopical examination there were detected the lesions of moderate interstitial appendicitis, with considerable thickening of the walls of the blood-vessels. The tumours consisted of bundles of dense fibrous connective tissue that coursed in various directions and intertwined among themselves and interspersed between them was a small number of unstriped muscular fibres. The growth opposite the meso-appendix contained a considerable amount of calcareous infiltration. The second case was like

FIG. 9.

Papilloma of the vermiform appendix (St. Bartholomew's Hospital Museum).

the first. There is in the museum of St. Bartholomew's Hospital a specimen of a simple papilloma of the mucous membrane of the appendix. About one-third of the distance along the appendix from the cæcum there project from the mucous membrane lining the lumen three well-marked papillomatous growths. The largest of these is about half an inch in length and hangs freely into the cavity of the appendix which is apparently somewhat dilated. The papillomata were innocent in nature and covered with typical columnar epithelium.

Malignant new growths of the appendix are not so rare as are innocent growths, but they are sufficiently uncommon to make their occurrence a matter of interest and one for record. Such neoplasms are primary or secondary. New growths secondary to malignant disease primary elsewhere in the abdomen are not so very infrequent. Rolleston has remarked that it is possible that primary malignant new growths of the appendix are not so rare as is commonly supposed and he accounts for the scarcity of records from two causes; first, because the appendix may be removed for symptoms of appendicitis in quite the early stages of carcinoma and for want of a histological examination the presence of the new growth may be overlooked; and secondly, because if the disease is not removed early it will run its course, and at the post-mortem examination it will be difficult or impossible to say where the primary lesion originated. Both carcinoma and sarcoma are met with in the appendix, and also the growth which is now termed endothelioma. Carcinoma is found either of the columnar-celled, adeno-carcinoma, or of the spheroidal-celled variety. Such epithelial new growths have their origin in the epithelium of the glands or crypts in a manner similar to carcinoma of the large intestines.

There are two interesting points in the question of the etiology of carcinoma of the appendix. Do previous attacks of inflammation predispose to the commencement of the neoplasm? Does the presence of appendicular calculi tend to induce the cancerous condition? Unfortunately, the records of instances of primary carcinoma of the appendix are not too comprehensive and therefore data are somewhat wanting which would lead to a satisfactory conclusion on these points. I have been able to collect only 14 instances of undoubted primary carcinoma and three of undoubted primary sarcoma or endothelioma. In only two out of these 17 is there any mention of an appendicular calculus being present. In five, on the other hand, there is a definite history of one or more previous attacks of appendicitis, in some of which a former attack had occurred several years before the one which led to the excision of the organ. While, therefore, there is scanty evidence of appendicular calculi being a predisposing cause of carcinoma in a manner similar to that in which biliary calculi are thought to be precursors of cancer of the gall-bladder, there is more in favour of previous attacks of appendicitis being related to the incidence of carcinoma.

HERNIA OF THE VERMIFORM APPENDIX.

The number of instances in which the vermiform appendix has been found in hernial sacs is becoming more numerous every day, not probably because the actual cases are more numerous, but because there are many more operations for hernia at the present time than formerly. The appendix may constitute the sole contents of a hernial sac or it may be present with other viscera. The latter condition is chiefly concerned with cæcal hernia and will not therefore be discussed.

The appendix as the sole contents of a hernia is an interesting condition and one which at times severely taxes diagnostic skill. The question which first arises is as to how the appendix has come to enter a peritoneal pouch protruded beyond the abdominal wall. The normal appendix, some three or four inches in length, with a complete meso-appendix, is free to move within the abdomen within a certain range around its attachment to the cæcum, but it cannot be brought down to, much less forced or dragged through, either the right inguinal or right femoral ring. One of two conditions, then, is necessary for its descent. In the first place it may be considerably in excess of its usual length. This can be either the outcome of congenital elongation or of a stretching the result of adhesion. In the second place the cæcum may be abnormally free because of the presence of a long mesocæcum, with the result that the appendix may thus approach dangerously near to a hernial aperture.

A further point comes up for investigation in the query whether the appendix alone can be the primary and the final contents of a hernial sac. It is undoubtedly possible for it to be extruded into the sac of a so-called congenital right inguinal hernia, for in such a case there is a naturally patent processus vaginalis into which any viscus lying near may be forced. It is certainly somewhat difficult to understand how such a small part of the alimentary tract, having so little of surface area, would be able of itself to form a sac

[2] Appendicitis, 1900, p. 95.

by pressure. But, on the other hand, is it actually necessary that there should be the special and active distending force of a particular viscus in order that an acquired pouch of peritoneum may be produced?

It does not require any very resistant organ to act in the production of a pouch—in fact, it may be true that no pressure of any individual viscus is absolutely needful. Some sacs with very narrow necks and yet apparently of acquired origin have but an extremely thin process of elongated omentum lying within them, and surely this would seem of itself less able to aid by pressure in the formation of a protrusion of the serous membrane than even the appendix. If, however, it is necessary to suppose that other of the abdominal contents besides the appendix have been the cause of the hernial sac, it is difficult to account for the very small pouches, and these often with narrow necks, which are found not infrequently as the coverings of prolapsed appendices. Doubtless this argument is open to the rejoinder that it is quite possible for the original multiform contents of the sac to have been reduced all but the appendix (which might alone have become adherent) and then for the mouth and neck of the sac to contract around the small structure passing through them, and beyond this it is perhaps feasible that strangulation, or, at least, some constriction of the appendix, may thereby occur. Or, again, the appendix might slip into a sac which had not previously contained it but which had been occupied by some other viscera.

The appendix when herniated is liable to a number of changes, some of which are peculiarly interesting and others of the gravest import.

Elongation.—Elongation is almost invariably present. The normal or average length of the tube is often given as about four inches, but the appendix may vary from one inch to nine or more inches. This lengthening, as has been remarked, may be the outcome of traction upon the tube, either by its being repeatedly nipped in the hernial ring or by its being adherent within the sac. Moreover, an appendix may be congenitally longer than usual; this fact itself may predispose to its protrusion. With this elongation there is sometimes an accompanying diminution in the calibre of the tube in its whole length or only in that part which still lies within the abdomen.

Adhesions.—Adhesions may form and they seem to be of comparatively common occurrence. Indeed, the appendix would appear to be proportionately more frequently adherent than any other viscus found in a hernial sac. These adhesions are probably always the result of local inflammation and it is a well-known fact that an abnormally placed appendix is very liable to attacks of an inflammatory nature. In these cases of adhesion the appendix may be found attached to the margins of the mouth of the sac, with the extremity free in the body of the protrusion, or the tip alone may be the portion adherent, or, again, its whole length may be attached. This adherence, moreover, will bring about irreducibility and may further lead, as above stated, to elongation and thinning of the tube. Possibly it has also to do sometimes with the onset of another attack of inflammation by producing some kinking of the tube or by obstructing the exit of secretions from its lumen into the cæcal cavity. Lastly, the blocking of the mouth of the hernial sac may be so complete as to shut its interior off from the abdomen and thus to bring about the formation of a hydrocele of a hernial sac.

FIG. 10.

Hernia of the vermiform appendix into a right femoral sac (St. Bartholomew's Hospital Museum).

Cystic dilatation.—A cystic dilatation of the protruded portion has been found in several cases. Within the abdomen such a condition may also be found and there it would appear to be due to blockage of the lumen of the tube, either by contraction or by constriction or by kinking. Precisely the same may occur in a hernial sac. The mucous membrane of the tube contains glands which are continually secreting and if obstruction to the overflow of this secretion into the cæcum exists a cystic dilatation will result.

Inflammation.—Inflammation in a hernial sac is decidedly common, just as it is when the appendix retains its normal position. The causes of these inflammatory attacks are probably exactly similar to those of inflammation occurring in the appendix when it is in the abdominal cavity. It has been suggested that a truss worn over an adherent appendix is very likely to produce injury and thus cause inflammation and possibly this may account for a small proportion of the cases. As in the abdomen, so in the sac of a hernia, perforation of the appendix may be a termination of the inflammation and this may lead to symptoms which are very like, if not identical with, those ordinarily said to be the outcome of strangulation of the tube within the sac. In many of the recorded cases it was stated that there was a sudden onset of the symptoms and that there was local pain, also vomiting, and in some distinct constipation. These, of course, are symptoms which might well be put down to strangulation, and, therefore, intestinal obstruction, not so complete certainly as in instances where strangulation of a loop of intestine occurs, but similar in every detail to those which are in evidence when appendicitis is present within the abdomen. In this latter condition there is wanting any cause of strangulation of the appendix, though there is evident inflammation of the tube.

Strangulation.—Strangulation of a true nature no doubt does sometimes occur when an appendix is protruded, though I venture emphatically to assert that this is much less common than is usually thought to be the case. It may be brought about in at least two different ways. In some cases the contraction of inflammatory tissue outside the sac has seemed to be the real cause, but more frequently it appears that the appendix has been forced into a sac with a very narrow mouth, particularly into that of a so-called congenital inguinal hernia. Here the strangulation will be the result of the direct pressure of the tissues around the neck of the sac. In whatever way produced the symptoms which follow are, as has been stated, hardly those of true intestinal obstruction, but rather similar to those occasioned by a partial enterocele, by strangulation of Meckel's diverticulum, and sometimes by a prolapsed and nipped ovary. Usually on opening the sac the appendix is readily recognised, but at times owing to the presence of many adhesions, with, in fact, a matting together of the tissues, it is difficult to be sure as to the structure which is being dealt with. The appendix has been mistaken for the sac wall itself, greatly thickened, for a second sac within an outer one, for the Fallopian tube, for Meckel's diverticulum, and even for the urinary bladder. The elongated form, the presence of its free extremity, and its small size as compared with other hollow viscera all serve to differentiate the appendix. The methods of treating the organ vary according to the condition in which it is found. If an operation for the radical cure of a non-strangulated irreducible hernia is being undertaken and the appendix is found in the sac it may be returned to the abdomen, or it may be amputated in the usual manner and the stump returned within the peritoneal cavity, a line of treatment which, from its safety in the present day, is certainly the better. If, however, the tube is found adherent, and especially if not of natural size, it is well to free it from its attachments and to remove as much of it as can be readily drawn down into the sac.

ISOLATION HOSPITAL FOR TROWBRIDGE.—The Trowbridge and district joint isolation hospital committee has decided to erect a new hospital at an estimated cost of about £7000.

The Lettsomian Lectures

ON

THE CONDITIONS WHICH MODIFY THE CHARACTERS OF INFLAMMATIONS OF THE SKIN, AND THEIR INFLUENCE ON TREATMENT.

Delivered before the Medical Society of London on Feb. 16th and March 2nd and 16th, 1903.

BY H. RADCLIFFE CROCKER, M.D., F.R.C.P. LOND.,

PHYSICIAN TO THE SKIN DEPARTMENT, UNIVERSITY COLLEGE HOSPITAL.

LECTURE III.[1]

Delivered on March 16th.

MR. PRESIDENT AND FELLOWS,—The internal treatment of inflammatory diseases of the skin rests, so far as our knowledge permits, on the same foundation as that of other organs—viz., an accurate diagnosis and full knowledge of the etiology, pathology, and prognosis of the disease with which we have to deal. Unfortunately, the gaps in our knowledge under these heads are at least as wide as they are in any other department of medicine, and we have to try to fill them up to the best of our ability with the help of remedies which experience has taught us to be of service in this or that form of dermatitis, whether we understand the *modus operandi* or not. I hope, however, in my previous lectures that I have afforded some assistance in estimating the factors to be considered in coming to a conclusion as to the line of procedure. So far as the treatment depends on the general principles of medicine it is not for me to presume to lecture you; I would only like to say that, being a firm believer in the theory of the frequent absorption of toxins and ptomaines from the intestines and other organs, I am as strong an advocate for clearing out the *primæ viæ* as ever our forefathers were who with their emetics and purgatives cleared out their patients so thoroughly, whatever their complaint might be, that it gave occasion for the laity to rail against the profession, as in the uncomplimentary couplet attached to the name of the distinguished physician in whose honour these lectures were founded. As their patients were for the most part gross feeders and heavy drinkers they had some excuse for their drastic procedures, while we, having more definite aims, are able to avoid the excesses of these stalwarts in medicine and are content to remove whatever fæcal matter the intestine contains and to diminish portal congestion and with intestinal disinfectants and the requisite precautions as to diet endeavour to prevent the formation of fresh toxins.

For the liver and kidneys similar principles are to be carried out and the success of many of the spas, like Contrexéville for instance, really depends on its being a method of washing out the liver, kidneys, and intestines with very dilute alkaline fluids; but copious draughts of aerated distilled water are an excellent substitute for those persons whose powers of elimination are not up to the proper standard while their purse will not enable them to go to these spas; and sipping very hot water is also a familiar expedient although overdone by the laity, whose zeal being not according to knowledge is only too apt to abuse the remedy of the hour by indiscriminate use.

In senile eczema and pruritus this washing out of the liver and kidneys is especially important and is often the means essential to success.

ARSENIC.

When we come to the specifics naturally arsenic has first to be considered both on account of its long-established position and because of its employment for all sorts and conditions of skin eruptions by a large majority of the profession. Yet I venture to say that it is regarded by dermatologists generally as a most disappointing drug and that its rôle gets more restricted as their experience widens.

How does arsenic act? Our knowledge is far from complete, but there can be little doubt that it has a direct action on the epithelial cells and also on the vaso-motor nervous system centrally or peripherally and on the periphery of the cerebro-spinal nerves. In order to get the good results without the bad we must have definite aims; its local action is best seen in the patches of chronic subacute scaly eruptions such as psoriasis and some forms of lichen planus.

That its action is really local on the diseased area for which it has an elective affinity is shown by its effect on the patches of psoriasis. While it often removes any particular patch it does not prevent the evolution of another in its neighbourhood. There is also more pigmentation left in patches treated by arsenic than in those removed in other ways. That it is not a specific in psoriasis is shown by its not being in any sense prophylactic, and if given when the eruption is evoluting rapidly, so far from preventing this evolution it actually makes it come out more rapidly. It is, therefore, utterly useless for patients suffering from psoriasis to go on taking the drug year in and year out, as many do in the hope of warding off their enemy. They not only fail to do this, but they bring upon themselves dangers and disfigurement from the direct effects of the drug itself. The disfigurement, as is well known, is due to a sepia brown pigmentation which, in my opinion, is due to the actual deposition of the metal itself in the skin. When used only for a moderate time this pigmentation is limited to the area of psoriasis, for arsenic appears to pick out morbid tissue; of this I had an illustration in a patient suffering from psoriasis of the nails who said to me: "Since I have taken the medicine I have had a pricking sensation at the root of the nails."

The general pigmentation induced by arsenic may be recognised by its sparing for some time the neighbourhood of the hair follicles which appear as white dots on a dark ground, but eventually they get pigmented also. More important even than the pigmentation is the thickening of the horny layers, chiefly of the palms and soles, which ensues from its excessive use. This also is recognisable in the early stage, as it is at first a nodular thickening round the sweat orifices or actual horny warts may be formed, but after a time the whole surface is thickened and levelled up into a horny plate over the whole palm and sole except the arch, accompanied by, and perhaps in many cases caused by, hyperidrosis. Besides the inconvenience and unsightliness of this keratosis it is liable, as Mr. J. Hutchinson first pointed out, to lead to epitheliomatous growth from these warty thickenings.

In the following case the man had psoriasis in his youth for which much arsenic was given until he had horny hypertrophy of the palms. He remained free from psoriasis for thirty-eight years but the keratosis never went away and one of the warty growths became epitheliomatous and was removed; it recurred, but a wider operation cured it. That such a consequence should ensue, even so many years after the cessation of the drug, is a warning that it is not to be given indiscriminately and in a haphazard fashion, but its effects must be carefully watched and sufficient periods of rest given. At best it is a slow remedy as far as psoriasis is concerned.

In some of the worst forms of lichen acuminatus it has also been successful, but for that complaint we have now a better remedy than arsenic, its action in both this and lichen planus being probably directly on the epithelium of the diseased area. Its other action is through the nerves and is wholly or mainly peripheral.

Recurrent angio-neuroses such as some of the erythemata which recur at short intervals (not those which only recur seasonally) are often controlled and sometimes cured by the steady administration of arsenic in moderate doses but continued for a long time. Erythema hæmorrhagicum is one of these; in this eruption at intervals of a few days, or a few weeks, the patient has what appears to be an erythematous eruption in spots from a sixth to half an inch in diameter, but they are unaffected by pressure from the onset and some of the lesions acquire a purpuric appearance; it comes chiefly on the legs but in a minor degree on the upper limbs. It is probably caused by a toxin acting on the vaso-motor nerves but arsenic often controls it and may cure it. In one of my cases, a musician in an orchestra had an outbreak whenever he had been kept up very late; although I could not explain why this should be I regarded the eruption as of vaso-motor nerve origin and gave him liquor arsenicalis in five-minim doses which stopped the renewal of the

[1] Lectures I. and II. were published in THE LANCET of Feb. 21st (p. 491), and March 7th (p. 640), 1903, respectively.

eruption as long as he was taking it and ultimately cured the morbid irritability of the affected nerves.

In recurring sweat eruptions it is also of great value. The eruption illustrated by the following case was a form of miliaria exactly like the red gum on infants. The patient, a railway porter, had suffered from it for eight years, whenever he got overheated, as he necessarily often did at his work; arsenic controlled and partially cured it after it had been taken for a long period, but I scarcely expect that after so many years it will be completely cured. Another recurring sweat eruption in the form of small vesicles along the sides of the fingers, from which so many people suffer in the summer, is definitely relieved by arsenic. So also is chronic urticaria not dependent on digestive disturbances but in this the dose should be small and long continued. Pemphigus and dermatitis herpetiformis are generally controlled and sometimes cured by arsenic. But I am far from regarding it a specific for pemphigus as Mr. Hutchinson does, as it often fails conspicuously even to have a controlling effect. In all these the action is through the nervous system, chiefly the vaso motor, either peripheral or central. Its preventive influence over bromide or iodide eruptions has already been mentioned.

While the above pretty well covers the ground in which it is beneficial or curative, its frequent indiscriminate use renders it more important to point out where it is useless or injurious. As an internal remedy for eczema in any stage I have very little faith in it except in chronic scaly patches which can, however, be more efficiently dealt with by suitable local treatment, while in the acute and subacute discharging eczemas it is quite useless in my opinion. No doubt if it is given in every case with good local applications a fair number of cases will get well, but so most of them would if burnt sugar and water were given with the same local treatment, but in none of the obstinately recurring cases, without any apparent cause for the exacerbation, which often baffle us for a long time, has arsenic ever helped me in a single case that I can recollect and I now scarcely ever give it in eczema, either acute or chronic. It should never be given where there is already gastric irritation, as in acne rosacea, urticaria from dyspepsia, &c. It should not be given in the evoluting stage of psoriasis, and, as a rule, not when there is great hyperæmia, as it often aggravates the pruritus and congestion; indeed, with the exception of bullous eruptions, it is seldom advantageous in acute inflammations of the skin and often acts injuriously.

A few words as to its administration. It may, as you know, be given as a liquid, a solid in pills, or by injections. Injections are painful and are only, in my opinion, to be given for sarcomata; the Asiatic pills, which are arsenious acid and black pepper, are much used on the continent and are useful if the patient has to be out all day, but, on the whole, the advantages are all in favour of the time-honoured Fowler's solution, which can be given freely diluted and is thus less likely to give rise to gastro-intestinal irritation. The cacodylate of sodium is still on its trial. It is by no means certain that its action is the same as the other forms of arsenic, and it is not so free from danger in the recommended doses. On the whole, I should reserve it for hypodermic injection for sarcoma, in which one is justified in taking some experimental risks. All the other preparations of arsenic are, I think, inferior to Fowler's solution. The arseniate of sodium is said to be more easily tolerated by the stomach, but probably the real explanation is that the atomic weight of sodium is less than that of potassium and requires less arsenious acid to satisfy a given quantity of it, so that 10 minims of liquor sodii arseniatis only contain the same amount of arsenious acid as there is in five minims of Fowler's solution. In no case should it be given for many months in succession without intervals from time to time being afforded for its elimination.

SALICIN AND SALICYLATES.

These drugs were introduced by myself into dermatology and I can state with confidence that they have been conspicuously successful in a large number of skin diseases. At first I used the salicylate of sodium, but finding that it disagreed with rather a large proportion of patients I tried salicin and found it quite as good as far as its action on the skin went, while it seldom disagreed with the digestive or other organs. It has not so much depressing action as the salicylates, very rarely produces headache, and may always be combined with nux vomica if there should be any depression. In very exceptional cases I have seen it produce an erythema which is more frequently seen with the salicylates. Salicin is said to break up in the organism into salicylic and carbolic acid and it is possible that these substances in a nascent condition in the blood may exercise either microbicide action or at least hinder the multiplication and development of microbes. At all events, it is most likely to be successful in those diseases in which there is a strong probability that they are of microbic origin, such as psoriasis, lichen planus, and pityriasis rosea. On the other hand, it has no direct effect on any form of eczema and I only give it in that disease when I want to produce an effect on the liver and then the sodium salt is preferable. Speaking generally, it covers the same ground as arsenic and has in some respects advantages over that drug. Thus it may be given during the developing stage of psoriasis and often checks the outbreak, while I have never seen it increase the development as arsenic often does. In giving it in psoriasis it must be given in full doses, 15 grains three times a day to begin with, and it may be increased to 20 or even to 30 grains three times a day, though I seldom give more than 22½ grains; in these doses in some patients it produces constipation which has to be counteracted. It succeeds best in hyperæmic and extensive outbreaks, is of but little use when there are only a few chronic patches, and has not any striking effect on the scalp eruption. It appears to act by diminishing the hyperæmia, the patches become paler, the scales become looser and gradually cease to re-form, and the patch becomes a circle, and even this gets broken up and only fragments remain which are best removed by local means. Its effects, of course, are best seen when no local treatment is simultaneously employed, but if local applications are used they should not be of a stimulating character, otherwise the internal and external medicaments are opposing each other. In the great majority of cases its action is much quicker and it is successful in a larger proportion of cases than arsenic.

Of course the drug does not succeed in all cases—nothing does; but in 100 consecutive cases it would be beneficial probably in 75, it would have a markedly good effect in about 50, and in from 20 to 30 it would effect a cure, in an extensive case in from one to three months. I do not lay these figures down as absolute but as a general impression after a very extensive use of the drug. Some have been disappointed in its use either from prescribing it too timidly—i.e., in five-grain or ten-grain doses—or in expecting to see a striking effect result in a week or two, which is naturally exceptional, or in trying it only in a few cases and taking a few failures as an indication of its value.

In lichen planus the number of successes of salicin is not so great as in psoriasis, but that may also be said of arsenic or biniodide of mercury, but in some of the acute generalised cases the result has often been most satisfactory and even rapid, as in the following case where the disease was very acute and severe. A man, aged 30 years, was sent to University College Hospital by Mr. Percy Rose of Barking with general lichen planus which had developed rapidly latterly but had been present to some extent for eight months. It involved every region of the body, affected the mouth extensively, and was complicated by keratosis palmæ and hyperidrosis. He had taken Fowler's solution in five-minim doses for a month without any improvement before he went to the hospital. Salicin in 15-grain doses three times a day, which in three weeks was raised to 20 grains, was prescribed without any local application. Improvement was manifest in the first week, the enormously thickened skin of the palms and soles was shed in large pieces in three weeks, and in about six weeks the whole eruption had disappeared except that, as is usual, there was deep pigmentation on the site of the lesions. Such a rapid cure is exceptional, as the course of lichen planus is usually excessively slow in its involution though often rapid in evolution, and no doubt there are many cases which are unaffected by salicin, but the same may be said of any method; the failures are more numerous than the successes for any one drug.

Of pityriasis rosea, it may be said that it tends to get well of itself in from four to six weeks, so that it is difficult to say that a cure is the result of treatment or spontaneous, but there are cases which go on much longer, even several months, and I have repeatedly seen in such cases involution commence in a week or two after commencing the salicin. This could scarcely be an accidental coincidence.

With regard to bullous eruptions I have repeatedly known salicin to be successful both in pemphigus and in dermatitis

herpetiformis even when arsenic has been well tried and failed, so it is always worth while to administer it in both these diseases which are sometimes most resistant to every treatment and can perhaps only be controlled as long as the drug is being adminis ered. It has also been conspicuously successful in some of the more acute or widespread forms of lupus erythematosus, which although not a simple dermatitis resembles one in many of its features. This does not exhaust all the possibilities of the drug or set of drugs which I regard with more confidence than arsenic for the diseases which I have mentioned, for its range is wider and it gives a higher percentage of successes, but like other drugs it has its failures.

It is probable that similar drugs which break up in the organism may be found to give similar effects. Aspirin, the acetic ester of salicylic acid, is one of these and I have had a few cases of psoriasis successfully treated by this drug which has been introduced as a rival to the salicylates. In a very obstinate and extensive case with gouty swelling of the finger joints not only did almost all the psoriasis clear up, but the deformity of the fingers improved considerably. Its slight solubility—five grains to the ounce—and the comparatively high price militate against its extensive employment.

THYROID EXTRACT.

Thyroid extract, which was first brought prominently into notice by Dr. Byrom Bramwell for skin eruptions, came in with such a flourish of trumpets that it raised too great expectations and in the disappointment which followed the reaction has been too great and it is almost lost sight of as a therapeutic agent in dermatology. This, I think, is a pity; although it must be content with a lower place than was at one time expected it is a most valuable therapeutic agent. It was for psoriasis that most was expected of it and no doubt some very striking results were obtained, but the uncertainty of its action, not only in different cases but in different attacks in the same patient, and the fact that it not only sometimes failed but actually did harm in some instances, have made many throw it aside. The evils inherent in the substance itself can be avoided by not giving it to elderly people or to persons with weak hearts, by beginning with a single five-grain dose and taking two or three weeks to reach 15 grains a day, and never to give more to patients who are not under constant observation. In psoriasis it should never be given when the disease is evoluting as I have seen the most disastrous development in such cases. In young robust persons, with an extensive eruption which has reached its full development, it sometimes acts literally "like a charm" and I have seen the eruption disappear more quickly than under any other internal treatment, but it must be admitted that such cases are exceptional and that it too often disappoints where *a priori* it might be reasonably expected to succeed.

There are other diseases in which thyroid extract is distinctly advantageous. Willan's and Hebra's prurigo is one of these; eczema on a congenitally ichthyotic skin as I have previously mentioned; in lichen acuminatus I have found it conspicuously successful; and finally, although it does not come under dermatitis, it has more beneficial effect on lupus vulgaris than any internal medication that has ever been given. It is a substance, therefore, to be borne in mind, as a valuable medicament in selected cases, if given with due precaution and watchfulness to prevent thyroidism. Patients no doubt get thinner when taking it and they require an interval every now and then if it is to be given for a long period as in myxœdema and lupus vulgaris.

ICHTHYOL.

This drug is given internally to a limited extent and has been sometimes beneficial in some hyperæmic diseases like acne rosacea. I have found it chiefly useful in some of the sweat inflammations. Its successes are not very numerous or conspicuous, but it is one of those drugs which break up in the organism and its sulphur constituent is eliminated by the skin, of which an ocular proof will be afforded if a lead lotion is applied while the patient is taking ichthyol, the pores of the skin speedily turning black from the sulphur of the ichthyol combining with the lead lotion.

QUININE.

There is one more drug of which I have a high opinion in certain forms of extensive dermatitis and that is quinine. It must be given in large doses (from five to ten grains) and the method of administration is important. This should be in an effervescing citrate of potassium mixture. In this way it rarely disagrees with the patient or produces cinchonism if the bowels are kept open, while if given in the ordinary way with sulphuric acid large doses are seldom tolerated. I prescribe it chiefly where there is extensive or universal dermatitis, especially in pityriasis rubra. Dr. J. F. Payne advocates it in lupus erythematosus when acute or widespread. It is an alternative drug in some cases of pemphigus and dermatitis herpetiformis when arsenic and salicin have failed, but it is not equal to either of those drugs in the number of cases for which it is suitable.

SUBCUTANEOUS AND INTRA-MUSCULAR INJECTIONS.

Subcutaneous and intra-muscular injections of various drugs obtain a growing importance in dermato-therapeutics. Salts of mercury hold the first place and no doubt as yet their chief employment is found in syphilis and leprosy; but I will not dwell on their value for these diseases as they do not come within the scope of these lectures; but in some obstinate and extensive cases of psoriasis, in which other internal medication has failed and when the patient cannot lie up for efficient local treatment, I have had very gratifying success with injections of mercury salts. These injections should always be intra-muscular and not subcutaneous; the latter are much more painful and are liable to produce sloughs at the site of injection. In my opinion the soluble salts are preferable, as they are less liable to produce severe and even dangerous salivation than the insoluble salts with which there have been several accidents, although really a very small number compared to the thousands of injections given.

The perchloride and sozoiodolate are the salts chiefly employed; the latter is the best as it is equally efficacious and less painful. The dose is a quarter of a grain dissolved by the aid of one-third of a grain of iodide of sodium in 20 minims of water, injected into the buttocks once or twice a week. As the biniodide and perchloride of mercury by the mouth have proved useful in lichen planus, probably intra-muscular injections would be still more efficacious, but they should not be employed until other means have been thoroughly tried, as the injections are painful and would probably not be tolerated unless the patient had tried and failed to get relief by other treatment. Mercurial injections have also been used for lupus vulgaris with some measure of success, but there are other means at our disposal for this disease.

Arsenical injections have been occasionally used for chronic inflammations of the skin such as would be benefited by the same drug given by the mouth, but the results have not been sufficiently good to warrant their being recommended and their only use seems to be for sarcomatous tumours as first recommended by Köbner. Mycosis fungoides has also undergone temporary amelioration with them. The potassium salt is much more painful than the sodium salt, and this is the one to be preferred, and here also intra-muscular injections are less painful than subcutaneous ones.

Cacodylate of soda and the similar body called arrhénal have not, as Sir Thomas R. Fraser has shown, justified their laudatory introduction.

Subcutaneous injections of thiosinamin were first recommended by Hans Hebra for lupus vulgaris, but other methods were found to be superior and it was soon abandoned for that; it has, however, been found remarkably useful for keloids and hypertrophic scars, and I can bear personal testimony to its value Here is an example. A boy, aged 14 years, was burnt by a chemical and a keloid followed in a month or so, oval in shape, one and a half inches long, and situated on the forearm. It was excised by the family medical attendant and primary union was obtained, but a keloid soon formed in a line with the incision and in the suture holes and in three months from the operation was three and a half inches long and half an inch wide and was getting more prominent and irritable; weekly injections of a 10 per cent. thiosinamin solution were recommended and in two months after seven injections the major growth was flattened and had lost its purplish tint and several of the suture keloids had disappeared.

In hypertrophic scars I have had very good results. In a girl with contracted thickened bands across the elbow of long standing and consequent on a burn, the thickening entirely disappeared and the mobility of the joint was in great part restored. In another case in which there was a band all round the lower jaw, raised up a third of an inch

with numerous projecting spur-like processes, very considerable improvement was produced, the growth being much flattened, but the patient was unable to continue to attend the hospital, so that the cure was incomplete. Its mode of action I am unable to explain. The 10 per cent. solution in glycerine and water usually recommended cannot be kept in permanent solution; but 8 per cent. solution with 20 per cent. glycerine and the rest water, the solution being effected with a gentle heat, remains dissolved. The injections are well borne by the patients and are not, therefore, very painful nor do they produce any bad effects, local or general, in my experience.

But sufficient has been said upon specifics and it should be remembered that in a large proportion of cases their administration is an indication of failure to understand the true etiology and pathology of the disease and that we are driven, therefore, to resort to empirical remedies. This is not a reason against them if we have first used all our available knowledge in the investigation of the case on which to found a rational treatment, but this is unfortunately possible only in a very limited number of cases and very often in the history of medicine the empirical remedy has justified its use by its curative successes long before the theory of its action was understood; the use of quinine in malaria is a striking example. Still, we are beginning to get a glimpse of the *modus operandi* of these so-called specifics; sometimes we can fairly regard them as microbicides in the blood, or as antidotes to autotoxins, or as preventing the formation of these toxins, and in proportion as we are able to use these drugs on a rational basis our successes in their employment will increase, while it is an immense satisfaction to find that having made a correct pathological diagnosis we are able to insure that the treatment founded upon it has also been the correct one.

There are certain general measures to be adopted in all forms of acute and widespread inflammation of the skin quite irrespective of what the diagnosis may be; first of these come rest and equability of temperature. Although urticaria is not a true dermatitis, it is not far off from the early stage of it and may be used as an illustration of it. Jacquet enveloped in cotton wool, one arm only of an urticarial patient; the urticaria came out as before on the uncovered arm while there was none on the covered one. The importance and value of putting patients in bed who have an extensive dermatitis were borne in upon me very early in my career. Wishing to observe the influence of certain drugs on different inflammations of the skin I took the patients into the hospital and gave them no active medication until the influence of transference from their home to the hospital had been eliminated, and I found to my surprise that in many cases the improvement was so great that no trial of the drug could take place. The case of a postman with a general erythematous eruption which had been present for several months without improvement made a strong impression on my mind. I put him in bed without any other treatment and in three days the eruption disappeared and did not recur.

The true prurigo of Willan and Hebra, which is proverbial for its obstinacy, is at once relieved by placing the patient in bed, and in a week some of the most severe and distressing features in a great measure will have subsided. When the whole skin is *hors de combat* as in pityriasis rubra it is not only desirable but positively imperative that the patient should be in bed and I will not undertake the responsibility of such a case if the patient refuses to lie up completely. Some years ago a man came to me with this disease very extensive but not then universal, his face being spared. I urged him to lie up at once, but as he had an invitation to stay in luxurious quarters he said that he would defer treatment until after his visit. I could not hint that he was not a very desirable visitor (for when he undressed the scales fell down like a theatrical snowstorm) but I tried in vain to dissuade him from such a dangerous procrastination and a few weeks later I heard that he had died, it was said from congestion of the kidneys. I believe that his life would have been saved if he had at once taken to his bed and had been efficiently treated from the first. Even when a dermatitis is not sufficiently extensive to necessitate the patient lying up it is often of the highest importance to avoid sudden changes of temperature and it is a matter of common observation in a patient with eczema, or, indeed, almost any acute dermatitis, especially on exposed parts, that to go out in a north-east wind or to ride in an open carriage on a windy day is an almost certain way of producing an exacerbation of the disease. In persons still more sensitive, such as those who have urticaria, the sudden change of going in winter from the usually warm sitting-room to a cold bedroom will often determine an attack.

LOCAL TREATMENT.

I have pointed out the line of the local treatment for the several affections which we have been considering as we went along and there only remain a few general principles to consider. One is that in all acute inflammations the applications should be continuous. An ointment or a lotion applied for a few moments two or three times a day will be seldom of any service except for a slight inflammation. The continuous application insures that the medicament will be in the closest contact with the diseased surface, that the part will be guarded against external microbic invasion, that it will be protected from air and water, and that it will be to a great extent at rest and at an even temperature. Continuous applications must necessarily be of a mild character or they will increase the inflammation, lead, zinc, of what the Germans call indifferent applications, such as simple unguents and oil, being the kind of medicaments chiefly employed.

Most microbicides, such as tar, mercury and silver salts, chrysarobin, ichthyol, &c., are more or less irritants and should be applied for a short time only and of a dilution adapted to the intensity of the inflammation irrespectively of its name, and it is often safer to try the application on a small area at first until the right strength and best form of application have been ascertained. These drugs can often be combined with soothing astringents, such as zinc oxide or zinc oleate, to mitigate any irritant action and it is by no means to be inferred that the stronger the proportion of the most active ingredient the more beneficial will be the prescription. In the case of chrysarobin, for instance, such very small proportions as from one to five grains of chrysarobin to an ounce of zinc ointment will act admirably in some subacute cases of eczema or in the more acute forms of psoriasis, while in stronger proportions the disease would be aggravated. The same may be said of many tar preparations. In chronic indurated patches higher proportions may be necessary. In the case of tar in the milder forms of eczema, while it is often one of the most efficacious remedies we possess—so much so that one gentleman of high repute in dermatology acknowledges that tar and lead lotion is his one remedy for all forms of eczema, the proportion only varying to each other and to the dilution—yet tar is one of the most difficult remedies of which to be sure of the suitability in cases of eczema, a premature use or too strong a proportion lighting up again an inflammation just when it seemed to be subsiding satisfactorily. It should, therefore, be ordered in small quantities at first and in a small area and for a short time in cases of eczema, while in psoriasis it can be adapted to almost every case by a little management and even be used at the full strength of the Pharmacopœial liquor picis carbonis, if a soothing lotion be immediately and continuously applied afterwards.

In choosing a local remedy it is necessary to have a definite aim. Is it the hyperæmia that is to be subdued, the exudation to be dried up, or the suppuration to be stopped? or is it some micro-parasite that is to be destroyed without increasing the inflammation? Then the extent of the area affected is to be taken into consideration, as the medicament might be, like mercury or pyrogallic acid, dangerous if applied to a large region though quite adapted for a small area.

Further, there is a complicating factor of which it is not possible to predict, unless from previous experience of the patient—viz., idiosyncrasies towards certain drugs, either external or internal, and the variable reaction to remedies of certain skins. This is especially common in the acute forms of eczema—a remedy which is like a balmy breeze to the majority of patients acting like the blast of a furnace to some others in whom the character of the inflammation appears to be precisely similar. No doubt experience diminishes the number of such mistakes, but the most experienced have many humiliations to put up with in this connexion. It is for this reason if for none other that it is wise never to start with strong remedies but to work up to them as the knowledge of the patient's peculiarities increases.

Many of the indications can be successfully met by recognising the character of the inflammation without

making an exact diagnosis, an acute psoriasis and a subacute eczema, for instance, often requiring the same local treatment, but in others an accurate diagnosis is essential, as in the inflammation excited by scabies in clean people, which is so often erroneously treated as an eczema, or in not recognising that impetigo contagiosa is secondary to some previous itching lesion such as urticaria, prurigo, animal parasitic irritation, &c. It is, however, often desirable and even necessary to remove the secondary lesions first in order to pave the way for the most effectual means of treating the primary eruption.

GENERAL DEDUCTIONS.

The general deductions which may be drawn from the subject we have been considering are:—That a large proportion of inflammatory diseases of the skin are of compound origin. That there is frequently a microbic element and that this too may consist of more than one kind of microbe superimposed on another such as the staphylococcus aureus on the streptococcus pyogenes, the staphylococcus on the seborrhœic micro-bacillus, the seborrhœic micro-bacillus on the bottle bacillus, &c. That not only do these several mixtures produce different forms of dermatitis, but that even the same microbe may produce different forms according to its mode of implantation in the skin. That the microbic element generally requires a suitable soil for its successful implantation and propagation. That this soil varies with the age of the individual and the kind of skin he possesses of which the modifications may be congenital or acquired, certain of the tissue proclivities being probably hereditary. That intestinal and probably other visceral toxins and ptomaines play an important and often unsuspected part in producing many forms of eruption and even that many supposed gouty eruptions are really of toxic origin from the generally present intestinal catarrh. That many of these toxins act through the vaso-motor nerves, central or peripheral, rather than directly on the skin, though they may act directly on that also. That the cerebral nervous system acts chiefly as a controlling influence over the sympathetic system as regards the intensity of the eruption. That with very few exceptions the nervous system, whether vaso-motor or cerebral, exercises but little influence on the character of the eruption though it does on its distribution and intensity. That the character of the eruption is mainly due to individual peculiarities or proclivities of which we can often only chronicle the result without being able to explain it. That while with apparently the same etiology different eruptions may ensue in different individuals, in recurring eruptions in the same individual there is remarkable constancy in the characters of the eruption and in its time, place, and mode of development. That many general eruptions are for a long or short time of local origin, occupying only a small area before generalisation. That other serious affections start from apparently trivial causes, such as seborrhœa, a superficial pustule, &c., and that it is important, therefore, to treat affections of the skin in as early a stage as possible, as most inflammatory eruptions have a much greater tendency to further development than they have to spontaneous involution. That the principles of treatment depend on the due appreciation of the relative importance in any one case of the microbic, the personal, the nervous system, and the toxic elements; and that so far as our knowledge extends the general principles of medicine apply to them, but that inasmuch as our power of estimation is often at fault we have to fall back on certain so-called specifics which experience has shown to be of service in certain conditions. That the most reliable and comprehensive specifics are arsenic, salicin, thyroid extract, quinine in large doses, and iodide of potassium; the first two have a very wide range as compared to any others. That except as regards pustular eruptions and those demonstrably of micro-parasitic origin the character of the local treatment depends comparatively little on the diagnosis of the particular kind of dermatitis, the extent, intensity, and localisation of the inflammation being the most important elements. That in employing microbicide treatment in superficial and widespread eruptions the microbicide should not be irritating, or should at least be capable of being at once neutralised, otherwise the increased inflammation set up defeats the aim of the therapeutist and affords a favourable soil for further microbic development. It is in comparatively few circumscribed microbic diseases, such as impetigo contagiosa, boils, and carbuncles, that the microbicide is the sole curative agent. That in all widespread forms of dermatitis rest and equability of temperature are the most important and often the essential curative means. Finally, that in proportion as we study diseases of the skin in the same manner as we study diseases of other organs, we shall find that their treatment can be carried out successfully on the sound basis of pathology and that specifics will occupy a diminishing space in our armamentarium.

The statistics which I gave you in my first lecture show that the task of acquiring the power of diagnosis such as every practitioner should possess is not difficult in the majority of instances, as three-fourths of all cases of dermatitis are comprised under a very small number of diseases, but a considerable practical experience is necessary to grapple successfully with the variations which even these few common diseases present according to the several conditions we have already discussed; but attention to these points will gradually make this easier and will bring success which will add interest to the further study of a class of diseases which is a sealed book to many otherwise well-informed medical men, because they have not started on their investigation in a systematic manner.

I trust that this brief *résumé* that I have given of a wide subject will be of some assistance to a serious study of the inflammations of the skin which will well repay the time spent upon it both by yourselves and him whom I must now call "your late Lettsomian lecturer."

A CASE OF ACUTE SPLENIC ANÆMIA TERMINATING FATALLY WITH GENERAL BACTERIAL INFECTION.

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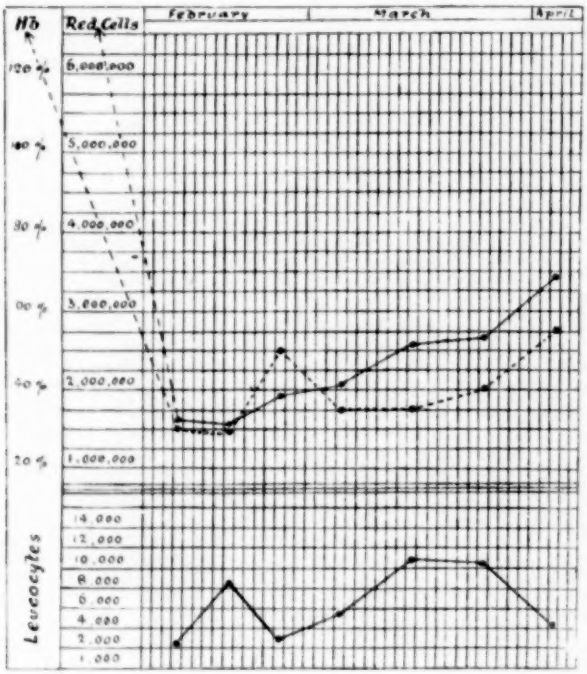
AN Italian *chef*, aged 37 years, was admitted into St. Thomas's Hospital on Feb. 7th, 1902, where he died two months later. His previous history threw no light on the nature of his illness. He had had no illness except slight indigestion occasionally, had always been temperate, but had smoked about an ounce of cigarettes a day. There was no history of syphilis or malaria or rheumatism, and he had not been in Italy for 26 years. He presented an odd appearance, for at the age of four years he was run over and his lower jaw was so damaged that some of the bone on the left side necrosed and was removed and at the age of 14 years he lost the sight of the left eye by an accident. His statement was to the effect that in January, 1902, having been previously in good health, he was admitted into the Italian Hospital suffering from pneumonia. The anæmia probably dates from this time, for on his recovery from the pneumonia he was sent to a convalescent home with the advice to return to the hospital later to obtain treatment for the blood state. After a few days at the convalescent home he began to experience difficulty in swallowing solid food, apparently through a dryness of the mouth, and becoming discontented on other grounds he left the home and was admitted into St. Thomas's Hospital.

On admission his chief complaint was a distressing feeling of weakness. But he stated also that he had difficulty in swallowing solid food, had to roll it about in his mouth before he could get it moist enough to swallow, and was frequently aroused from sleep by a choking dryness of his throat. There was some scarring over the lower jaw at the site of the injury which he had received in his infancy and the molars and the bicuspids had gone. But the rest of the teeth were in good order, there was no apparent lack of saliva, and there was no apparent change in the buccal or pharyngeal mucous membrane; and, as a matter of fact, he never showed any difficulty in swallowing after admission, but gave play to a very considerable appetite. He was rather thin and pale, with a slight yellowish tint of the skin and conjunctivæ. The

spleen was considerably enlarged (post mortem it weighed 25 ounces), but its borders were always difficult to determine, owing to general fulness and resistance of the abdomen. The liver extended for two inches below the costal margin, as determined by percussion, but no clear signs could be felt. The heart was healthy but for a systolic murmur in the pulmonary area; the pulse was 102, small, and of low tension, and the temperature was 101° F. The optic fundi were pale but healthy, the pupils were equal and active, and the knee-jerks and plantar reflexes were normal. The shins were slightly œdematous. The urine was strongly acid, brownish-yellow, clear, with a specific gravity of 1018, and contained no albumin or sugar. With the spectroscope it showed the absorption band of urobilin at F.

During the first fortnight of his stay in hospital he improved considerably under the use of iron and arsenic. His temperature became subnormal, his appearance improved, the appetite was good and at times voracious, and he expressed himself as feeling quite well. He gained three pounds in weight. During the second fortnight, however, his temperature began to rise, reaching 103° on two occasions, and coincident with this pyrexia there was profuse diarrhœa, there being on one day nine watery and rather offensive stools. There was no blood or anything to indicate any necrotic process in the bowel and the diarrhœa was, in fact, attributed to the irritant effect of the arsenic. The temperature fell to a subnormal point rather suddenly at the end of this period and during the third fortnight it remained subnormal with nearly normal stools, a good appetite, and considerable general improvement. During the fourth fortnight the pyrexial attack was repeated. The temperature rose slowly at first, but soon reached 104° in the evenings and remained at about that level until death. At the same time the bowels again became very loose. There was a tendency to sweat at night. The nose bled occasionally, the gums began to ooze, and the teeth became foul and clogged with blood. He took very little food. The mind became obscured. The heart failed rapidly and rhonchi were heard over both lungs. During the last four or five days of life he became more and more yellow, eventually reaching the colour commonly met with in catarrhal jaundice. The urine preserved the characters already mentioned and contained no bile. Bile was always present in the stools. During the whole course of the illness there was no alteration in the physical signs as regards the spleen and liver, but he complained occasionally of pain over the former. There were no ascites, no necrotic process in the mouth, and no cutaneous or visceral hæmorrhage.

CHART 1



The state of the blood can be gathered from Chart 1. It showed the type of secondary anæmia, the colour index being below par (from 0·6 to 0·9) except on one occasion (Feb. 24th), when it was 1·3. There were good rouleaux-formation and little, if any, variation in the size or shape of the red cells, though on one observation (Feb. 24th) a few showed polychromatophilic degeneration. No nucleated red cells were ever seen. There was no leucocytosis at any time and the normal relative proportions of the different kinds of leucocyte were roughly preserved, polymorphonuclear neutrophiles varying from 62 to 80 per cent., lymphocytes from 18 to 35 per cent., and eosinophiles from 0·6 to 2·0 per cent. A percentage of 0·6 of mast cells was noted on two occasions. Blood platelets were unusually abundant in one specimen. On three examinations marked leucopenia was found, the counts being 2200, 3000, and 4000 respectively.

Morbid anatomy.—The liver weighed 67 ounces, the patient's weight at death being 102 pounds. It was large, soft, and yellow. To the naked eye there was no appearance of cirrhosis. It was thickly studded throughout with dead-white specks, the largest having the size of a pin's head, and these could be seen to be surrounded by a zone of hyperæmia. There was no iron reaction. Microscopical examination showed no trace of cirrhosis or leucocytal infiltration. The whole organ was degenerate, the cells being cloudy and largely pigmented and the nuclei staining badly or remaining invisible. The white specks consisted of necrosed liver cells, numerous irregularly-shaped nuclei showing up among the granular structureless débris, and they were teeming with bacteria, mostly rods resembling the bacillus coli.

The spleen weighed 25 ounces. It was large and rather soft. The capsule was slightly thickened. Section revealed a large white infarct and the cut surface showed numerous white specks similar to those in the liver. Microscopically there were seen to be a slight fibrosis affecting the trabeculæ and sheaths of the vessels and considerable evidence of endothelial proliferation. The white specks proved to be patches of focal necrosis similar to those in the liver. There was no obvious change in the Malpighian bodies. The kidneys were large, soft, and yellow, the cells being cloudy or very granular. The pancreas showed no change and there was no apparent alteration in any lymphatic glands. The marrow was not examined.

The heart was pale, with large subpericardial hæmorrhagic blotches and numerous petechiæ in its muscle. There was an early stage of pericarditis, and both mitral and aortic valves showed distinct vegetations of recent origin. The lungs showed some broncho-pneumonia in the lower lobes, and here also, as in the heart, the serous surface showed early inflammation with deposit of lymph. The stomach and small intestine showed no change and there was no sign of ankylostoma or other worm. The cæcum and adjoining portion of the colon for a total length of eight inches presented the very peculiar appearance seen in the illustration. The normal folds were greatly swollen in height and in breadth, and being separated only by slight sulci they bore some resemblance to the convolutions of the brain. The thickening is shown by the fact that in places the distance from the peritoneal coat to the summit of a fold in a section through the bowel wall amounted to more than half an inch. The tissue was exceedingly firm, so that felt from the outside it suggested a new growth. As seen from the inside the whole patch was dark-grey or black. In the transverse and descending colon were two patches of croupous inflammation, each being covered by a dirty-white

membrane consisting of necrosed mucosa and coagulated exudation.

Microscopical examination of the affected part of the cæcum showed that the changes comprised hæmorrhage, inflammatory exudation, necrosis, and bacterial invasion. To demonstrate the early stage of the lesion an outlying flat-topped sessile projection of the mucous membrane may be taken. From such a spot the whole of the epithelium has been shed, including the cells lining the glands, though traces of the latter remain. In the underlying submucosa there is some exudation of small round cells and the remains of the mucosa are in a condition of early necrosis. Immediately under the muscularis mucosæ, which is itself altered by the necrotic process to such an extent as not to be recognisable in the central region of the elevation, hæmorrhage has taken place into the submucosa. The muscular

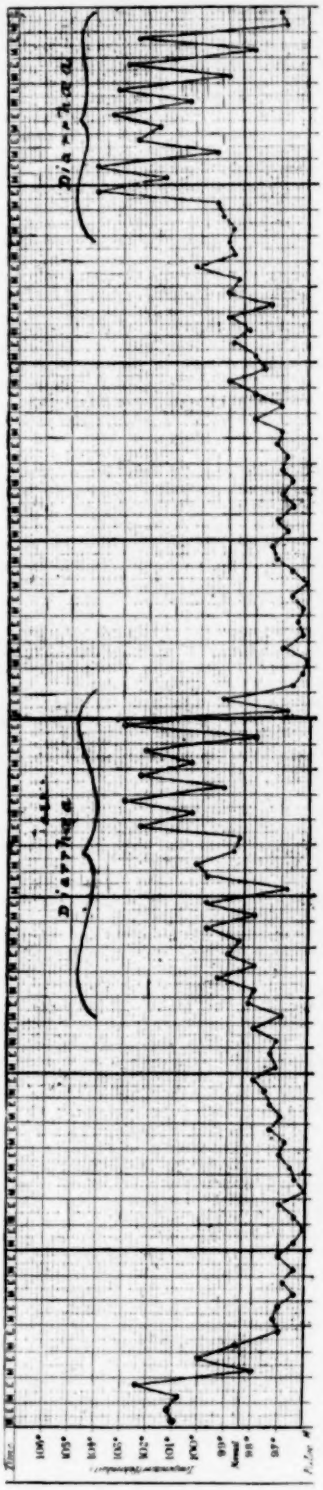
Cæcum in acute splenic anæmia.

tissue, though swollen, is comparatively little affected. One section, which contains the edge of a lymphatic follicle, shows that the follicle has not participated in the change, no necrosis and no infiltration with polymorphonuclear cells having occurred.

In a section through the most advanced part of the disease it is seen that the mucosa is swollen and necrotic over large areas, the submucosa is distended with inflammatory exudate now undergoing necrotic change, while hæmorrhages and distended vessels are present in the subjacent parts of the inner circular layer of muscle. Throughout the thickness of the necrotic mucosa, but most abundant in its deeper part, are numerous circular or oval areas of finely granular material, which appear to be the remains of the fundi of glands crammed with disorganised or dead epithelial lining. Bacilli and cocci are abundant in the necrotic mucosa and they extend also into the deeper layers, though here they seem for the most part to be limited to vessels, definite connective-tissue spaces, or lymphatics. The masses of hæmorrhage and exudate in the deeper submucosa and inner muscular layer do not seem to be infected.

Remarks.—A splenic anæmia—i.e., an anæmia of secondary type associated with enlargement of the spleen—stands out

CHART 2.



as a distinct symptom-group. It is as definite as pernicious anæmia and leukæmia, and though less common than these it is probably far more common than the scarcity of recorded instances would suggest. It consists of a primary splenomegaly, with more or less profound anæmia of a secondary type, without the characteristic blood changes of pernicious anæmia, without any material alteration, quantitative or qualitative, of the leucocytes (though leucopenia is generally noted), without enlargement of glands, generally showing pyrexia at some period, and in a late stage associated with some fibrosis both of the spleen and of the liver. In many cases coming under this definition the duration is measured in years, and it is to these cases that Osler[1] has particularly directed attention. A duration of 15 years has been noted. It is in such long-standing cases that hæmatemesis and ascites are apt to occur, leading perhaps to an erroneous diagnosis of cirrhosis of the liver. In a smaller number of cases, however, death occurs in from three to twelve months. Thus two forms—an acute and a chronic—may be recognised. It is possible that when the actual cause is discovered these two forms will be found to be distinct. But the symptoms and state in the two forms are identical, except in the occurrence of repeated hæmatemesis in the chronic form. And at present there seems to be little reason for arbitrarily separating them and for considering them as different diseases merely on the score of a difference in duration.

In the example of the acute form here recorded, the size of the spleen and the character of the blood exclude a diagnosis of pernicious anæmia. The blood state points rather to defective formation than to increased hæmolysis. At the same time the latter process is indicated, in spite of the absence of iron reaction in the liver, by the character of the urine and the yellow tint of the skin. The chief points of interest are (1) the apparent onset of the disease after pneumonia; (2) the curious periodicity of the fever as shown in the temperature chart (Chart 2), which might almost be taken as a copy of the chart given by West[2]; (3) the steady improvement under treatment as shown in the blood chart; and (4) the cutting short of this improvement by the supervention of a general infective state, as shown by necrosis of the bowel wall, focal necrosis of the liver and spleen, pericarditis, pleurisy, and acute endocarditis.

As regards the nature of splenic anæmia a string of facts points strongly to the localisation of the cause in the spleen. 1. In the first place it is highly probable that the enlargement of the spleen is practically the first sign of disease. In the case of a man, aged 64 years, recently in St. Thomas's Hospital, who had never had any illness except influenza and had led a perfectly healthy life, the onset of an acute splenic anæmia was very clearly described. In December, 1900, he began to notice a little unusual tiredness after his day's work and some disinclination for exertion. But he was little incommoded by this and did not think it worth while to consult a medical man until the end of January, 1901—i.e., not more than two months later. The spleen was then found to be already greatly enlarged, the lower end being at the level of the umbilicus. As regards the state of his blood (anæmia of secondary type) and his other symptoms he departed in no important particular from the case above described and he died six months after the beginning of symptoms with a spleen weighing 30 ounces. When he went into hospital he was very ill and the time for splenectomy had gone by. 2. In the second place it is certain that removal of the spleen will effect a cure and that it is the right course to pursue if it is estimated that the patient can survive the operation itself. Sippy[3] and Harris and Herzog[4] give a list of 19 cases of primary splenomegaly in which splenectomy was performed. Of these 14 patients recovered and four died; of one the result is not stated. 3 Further there is evidence to show that in long-standing cases at any rate the changes in the spleen have a somewhat distinctive character in the marked endothelial proliferation.

It is possible that this endothelial change is itself responsible for the blood state, as has been suggested, by the production of a hæmolysing enzyme, wholly abnormal or an exaggeration of a normal product. But such a theory, however plausible, is incomplete, as it still leaves us without a cause for endothelial change and the tendency must be to fall back on the hypothesis of the existence in the spleen of a long-lived bacterial or parasitic agent. At any rate, on any view it is difficult to get away from the idea that the actual cause of the disease resides in the spleen. The established disease bears a close resemblance to the state of chronic malarial cachexia with permanent enlargement of the spleen.

As regards the case here described, the question presents itself as to whether the infective termination can be allowed to have any bearing on the causation of the disease. On finding the very remarkable condition in the cæcum above described one was tempted at first from the hardness and blackness of the part and the presumable chronicity of the change to imagine the possibility that this might prove to be a primary lesion, from which the blood state had arisen. But the microscopical examination shows that it was not of long standing and it must be interpreted as a recent necrosis of the bowel wall, consequent on, or followed by, hæmorrhage into its tissue, with secondary bacterial invasion. Though it is a much rarer change, it must be regarded as being essentially of the same nature as the patches of croupous inflammation which occurred in another part of the colon, both of them meaning loss of tissue vitality and secondary bacterial infection. Neither change can be allowed to have direct bearing on the question of the bacterial or non-bacterial origin of splenic anæmia. At the same time it may be noted that a terminal croupous inflammation of the bowel, though it does occur in non-bacterial diseases such as cirrhosis and renal disease, is far more common in bacterial conditions such as pyæmia, septicæmia, and pneumonia.

As regards the state of general infection which was the immediate cause of death, its bearing on the question of the bacterial origin of splenic anæmia is vitiated by the occurrence of the intestinal necrosis. The whole series of changes, the focal necrosis of the liver and spleen, the pleurisy and pericarditis, and the acute endocarditis, may well have been the result of the intestinal infection. But their occurrence seemed to be worthy of record in connexion with a disease of which so little is known. As to the focal necrosis of the liver and spleen we know nothing of such a state except as arising from the action of bacterial toxins. In man it is confined to typhoid fever and dysentery. In the former disease an instance is described and depicted by Glynn.[5] The finding of recent vegetations on the valves after death from any acute febrile disease is a strong indication that that disease has been of an infective nature. Examples may be drawn from scarlet fever and, perhaps, other specific fevers, from pyæmia, erysipelas, and septic diseases generally, and from pneumonia. Considering the presence of the intestinal lesion, however, there seems to be no justification for laying stress on the endocarditis in this case as having a bearing on the origin of splenic anæmia. But, at the same time, it may be noted that a similar acute terminal endocarditis has been recorded in three cases of splenic anæmia by West,[6] Williamson, and Strümpell, and out of six cases of febrile (infectious) purpura occurring under the care of one of us similar early vegetations were found in three cases on the valves of the heart.

[1] American Journal of the Medical Sciences, January, 1900, and November, 1902.
[2] Allbutt's System of Medicine, vol. v., p. 544.
[3] American Journal of the Medical Sciences, vol. xcviii., 1899.
[4] Annals of Surgery, July, 1901.
[5] Thompson-Yates Laboratory Report, vol. iv., part 2, 1902.
[6] Loc. cit.

THE HEIGHT OF THE DIAPHRAGM IN RELATION TO THE POSITION OF CERTAIN ABDOMINAL VISCERA.

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WITHIN the last few years attention has often been drawn to abnormalities in the shape and position of certain of the abdominal viscera, especially with reference to the part these play in the causation of disease. Some short time ago a pamphlet was published by Dr. Arthur Keith on the "Anatomy of Glénard's Disease," and lately his Hunterian Lectures on this subject,[1] in which he laid stress

[1] THE LANCET, March 7th (p. 631) and 14th (p. 709), 1903.

on the action of the diaphragm and thinning of the abdominal walls as being important factors in the etiology of this condition. Since the introduction of the formalin method of hardening the abdomen one is often struck with the great variations in the position of such viscera as the stomach, liver, and gall-bladder, and it is observed that these occur mostly in female subjects.

The following observations were made with a view to ascertain the height of the diaphragm in the two sexes and to find out if there was any relation between the height of the dome, the position of the viscera, and the thickness of the abdominal wall, a guide to the latter being obtained by estimating the average thickness of the rectus muscle on the right side midway between the umbilicus and pubes. Nine consecutive cases in the dissecting room were examined without being selected in any way and the notes made will be found in the accompanying table.

CASE 1.—The patient was an old female. A marked Riedel's lobe was present, the right lobe of the liver extending to a quarter of an inch above the highest point of the crest of the ilium. The gall-bladder was greatly dilated and filled with gall-stones and communicated with a large abscess cavity in the right lobe of the liver. Matted adhesions were present between the under surface of the liver, transverse colon, and first and second stages of the duodenum. The abscess cavity measured five and a half inches long, four and three-quarter inches broad, and opened into the first stage of the duodenum by a narrow channel admitting a glass rod. The thickness of the rectus muscle in this case was very small, measuring three millimetres.

CASE 2.—The patient was an old male. The liver was greatly displaced backwards on the diaphragm. The anterior border in the mesial line was opposite the junction of the seventh costal cartilage with the sternum; in the right mammary line at the lower border of the sixth costal cartilage; and in the right mid-axillary line at the lower border of the eleventh rib. The gall-bladder was pressed against the under surface of the right lobe of the liver and was situated deep opposite the eighth right rib in the anterior axillary line. The under surface of the right lobe was greatly indented by the hepatic flexure of the colon. No gall-stones were present. The transverse colon crossed the abdomen six and a quarter inches below the tip of the xiphoid cartilage. A greatly loaded colon evidently accounted for the displacement of the liver. The thickness of the rectus muscle was eight millimetres.

CASE 4.—The patient was a female. The right lobe of the liver covered the right kidney to within half an inch of the lower pole, showing an indistinct Riedel's lobe. The gall-bladder was placed one inch below the tip of the ninth right costal cartilage. No gall-stones were present. The great curvature of the stomach was placed six and a quarter inches below the tip of the xiphoid cartilage. The transverse colon appeared low down one and a quarter inches above the symphysis pubis. The thickness of the rectus muscle was four millimetres.

CASE 5.—The patient was a female. A marked Riedel's lobe was present, the tip of the right lobe of the liver reaching to the highest point of the crest of the ilium. The gall-bladder was greatly dilated, the fundus measuring seven and a quarter inches long and two and a half inches broad. It lay in a fossa the upper half of which was bounded by the right lobe of the liver and the anterior surface of the right kidney; and the lower half, partly in the right iliac fossa, by the hepatic flexure of the colon which did not extend above a line drawn from the left anterior spine to the umbilicus. A few gall-stones were present. In this case the gall-bladder was placed almost exactly in the position of the normal appendix. The cæcum lay deep in

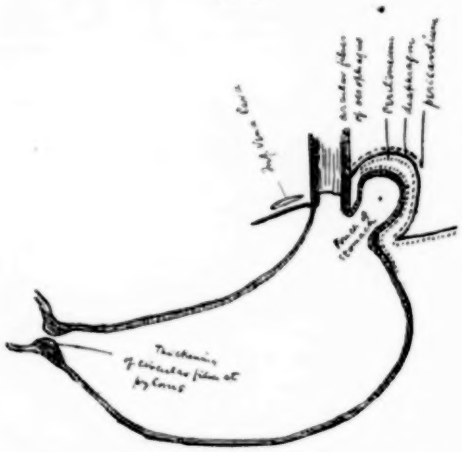
TABLE GIVING PARTICULARS OF THE HEIGHT OF THE DIAPHRAGM IN RELATION TO THE POSITION OF CERTAIN ABDOMINAL VISCERA IN NINE CASES.

No.	Sex.	Height of diaphragm; right mammary line.	Height of diaphragm; left mammary line.	Liver below the costal margin.	Stomach below the costal margin.	Transverse colon below the costal margin.	Gall-bladder.	Reidel's lobe.	Average thickness of the recti.
1	F.	Fifth rib.	Fifth interspace.	Three inches below the tip of the ninth costal cartilage.	—	—	Large abscess cavity continuous with abscess in the liver; gall-stones.	Present.	3·0 mm.
2	M.	,,	Fifth rib.	Greatly displaced back on the diaphragm.	—	Six and a quarter inches below the tip of the xiphoid cartilage.	Eighth rib in anterior axillary line.	Absent.	8·0 mm.
3	M.	Fourth interspace.	Fourth rib.	Three inches below the costal margin.	One and a half inches below the tip of the xiphoid cartilage.	Two and a quarter inches below the tip of the xiphoid cartilage.	—	,,	7·9 mm.
4	F.	Fifth rib.	Fifth rib.	—	Six and a quarter inches below the tip of the xiphoid cartilage.	One and a quarter inches above the pubes.	One inch below the tip of the ninth costal cartilage.	?Present. Right lobe half an inch below the lower pole of the kidney.	4·0 mm.
5	F.	Fourth rib.	Fourth rib.	Costal margin.	—	—	Partly in the iliac fossa; greatly dilated, 7¼ inches by 2½ inches; gall-stones.	Present.	2·0 mm.
6	F.	Fifth rib.	Fifth interspace.	—	Diverticulum of the cardiac end in a pouch of the diaphragm.	—	—	Absent.	—
7	F.	Fourth rib.	,,	—	Five and three-quarter inches below the tip of the xiphoid cartilage.	Seven inches below the tip of the xiphoid cartilage.	Immediately below the costal margin at the tenth costal cartilage.	,,	—
8	F.	Sixth interspace.	Sixth rib.	Four and three-quarter inches below the tip of the xiphoid cartilage.	Seven inches below the tip of the xiphoid cartilage.	Two inches above the pubes.	—	Not distinct. Tip of the right lobe reached the lower pole of kidney.	4·0 mm.
9	F.	Sixth rib.	,,	Two and a half inches below the tip of the xiphoid cartilage.	Five inches below the tip of the xiphoid cartilage.	Seven inches below the tip of the xiphoid cartilage.	One and a quarter inches below the tip of the ninth costal cartilage.	Absent.	5·0 mm.

the right side of the pelvis, the appendix, four inches long, lying in the pouch of Douglas. The thickness of the rectus muscle was in this case two millimetres.

CASE 6.—The patient was a female. In this subject the stomach showed a curious diverticulum at the cardiac orifice. Placed immediately to the left of the œsophageal opening there was seen a dome-shaped pouch of the diaphragm into which a finger could easily be passed, and drawn up into this was part of the cardiac end of the stomach, measuring vertically about one inch (see Fig. 1). The diverticulum could easily be pulled down from this pocket when it was noticed that the part of the stomach wall which lay against the neck of the pouch was thickened. The peritoneum was reflected from the diaphragm to the

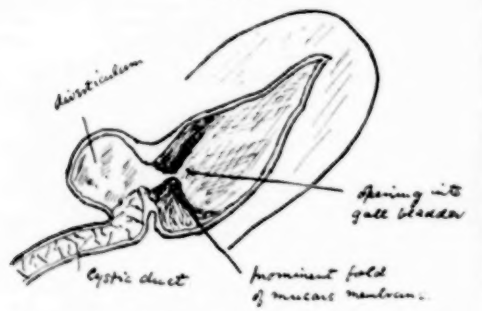
FIG. 1.



Stomach, showing diverticulum of cardiac end in the pouch of the diaphragm.

stomach at the top of the pouch. On slitting open the viscus the circular fibres of the œsophagus were seen to end at the right of the pouch. So that it was without doubt a case of diverticulum of the stomach and not, as was thought at first, a dilatation of the lower end of the œsophagus. The walls of the stomach were not thinned in any way, but the mucous membrane was thrown into well-marked rugæ. The pylorus felt on examination very hard and thick as if some sort of stricture was present and the orifice would scarcely admit a glass rod, but microscopic examination showed no definite hypertrophy. As there was no evidence of dilatation of the stomach, this apparent stenosis was evidently artificial and perhaps due to the hardening effect of formalin.

FIG. 2.



Illustrates gall-bladder with a diverticulum of the cystic duct.

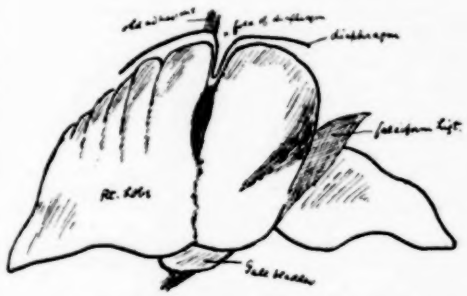
CASE 8.—The patient was a female. In this case the viscera appeared to be situated at a much lower level than usual. In the mesial line the liver extended to four and three-quarter inches below the tip of the xiphoid cartilage. Although no distinct Riedel's lobe was present the tip of the right lobe of the liver reached as far as the lower pole of the right kidney. The gall-bladder was situated one and three-quarter inches below the tenth right costal cartilage and the transverse colon two inches above the symphysis pubis. The thickness of the rectus muscle was four millimetres.

The following two cases are interesting as exhibiting abnormalities in the liver and gall-bladder in two female subjects.

The first showed a well-marked diverticulum of the cystic duct. The duct formed a sharp bend and opened at rather an acute angle into the diverticulum, which communicated with the gall-bladder by a narrow circular orifice bounded by prominent folds of mucous membrane. A few old adhesions were attached to the diverticulum.

The second was a case of compressed liver taken from an old female subject. The liver measured seven inches from side to side and four inches high. One and a half inches to the right of the longitudinal fissure was a deep grooving of the convex surface of the right lobe and in this lay a

FIG. 3.



Liver in old female subject showing a fold of diaphragm dipping into the liver.

diverticulum of the diaphragm. To the right of this were five other indistinct furrows. A few old adhesions were attached to the right of the dipping in of the diaphragm and also to the fundus of the gall-bladder (see Fig. 3).

On looking at the syllabus of the nine consecutive cases examined the first thing which strikes one is, I think, the great variation which seems to exist in the height of the diaphragm and the fact that this variation is well marked in the female subjects. In the seven females the height of the dome in the right mammary line varied from the fourth rib to the sixth interspace, whereas in the two males it did not extend lower down than the fifth rib. Secondly, it is remarkable that so many abnormalities in the position of the viscera should have existed in such a small number of subjects and that these should have existed chiefly in females; for in the seven cases examined there were two distinct and two indistinct cases of Riedel's lobe of the liver, two cases of gall-stones and two affections of the gall-bladder, and one abnormality of the stomach. Both cases of Riedel's lobe were accompanied by gall-stones and in one of the cases there was an abscess in the liver and gall-bladder, while in the other the gall-bladder was greatly dilated and lay partly in the iliac fossa. Again, the measurements of the recti muscles as an indication of the strength of the abdominal muscles are interesting, as in every case they are much smaller in the females than in the males. The thickness is especially diminished in the two cases in which a Riedel's lobe is present, the recti in these cases being so thin as to feel almost like a piece of brown paper. The distance of the great curvature of the stomach and the transverse colon below the xiphoid cartilage was also greater in the females than in the males. In the case in which the diaphragm reached the sixth interspace the great curvature was seven inches below the xiphoid cartilage and the transverse colon was two inches above the pubes.

Aberdeen.

QUEEN'S HOSPITAL, BIRMINGHAM.—This hospital ministers to the wants of a district containing a population of at least 700,000 persons. The in-patients treated last year amounted to 2065, the out-patients to 28,947. The yearly expenditure is over £11,000.

ANGINA PECTORIS: A CRITICISM AND A HYPOTHESIS.

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THE field of cardiac pathology still resounds with the clash of conflicting arguments and the fray has nowhere been more hotly contested than over angina pectoris. Yet, in spite of the 61 attempts which, according to Huchard, have been made to elucidate this symptom group or syndrome, as it is now the fashion to call it, the precise method of its causation remains more or less a mystery. It will be the object of this paper to criticise the more important theories which have been advanced and also to submit a hypothesis whereby the mode of production of this curious and interesting group of symptoms is capable of explanation.

It is necessary, in view of the conflicting opinions held by clinicians with respect to the set or group of symptoms comprised under the term angina pectoris, to define clearly the nomenclature that will be adopted. If, as Professor T. Clifford Allbutt pertinently observers, the title angina pectoris be used to include a variety of symptom groups which, though they may present a superficial clinical resemblance in the manifestation of some form of cardiac perturbation, yet differ widely and fundamentally in their etiological and pathological relations, all definite use of names comes to an end. In this connexion, too, it may be pointed out that the use of such terms as "false" angina pectoris and "pseudo" angina pectoris is altogether objectionable and fallacious, inasmuch as it is obviously incorrect and unscientific to call a disease or group of symptoms by what it is not, rather than by what it is. For the profitable discussion of any scientific problem it is well to deal so far as possible with clear-cut and definite conceptions and with this object in view the group of symptoms included under angina pectoris will now be clearly defined.

The earliest and central feature of the paroxysm is pain, heart-rending, insistent, well-nigh insupportable pain, which though initially and mainly retro-sternal tends to radiate over the upper portion of the thorax and down one or both arms as far as the elbows or wrists, and sometimes as far as the fingers. A sense or apprehension of impending death is the more or less constant and dread accompaniment of the pain. Agonised by this two-edged weapon the sufferer is rendered powerless and incapable of the slightest movement; he remains, as it were, petrified and rooted to the spot. The apprehension of sudden death is in the large majority of cases realised sooner or later, and post-mortem examination commonly reveals aortic and coronary atheroma associated, it may be, with a greater or less degree of myocardial degeneration.

Such, then, in outline is the clinical picture of angina pectoris, the picture drawn so forcibly and accurately by Heberden in the year 1768. Other so-called anginas are but mimicries of this terrible and deadly syndrome and in order to put an end to the misnomer and consequent nosological confusion involved in the use of the terms "false" angina pectoris, "pseudo" angina pectoris, and the like, I would suggest that the name angina cordis be applied to these allied but widely different cardiac perturbations. The term angina cordis, moreover, expresses more or less exactly the condition of the heart in these attacks and it can be suitably qualified in accordance with its mode of origin, as, for instance, angina cordis vasomotoria, angina cordis toxicata, &c.

The association of angina pectoris with disease of the coronary arteries and myocardium was observed and insisted upon by Jenner and is now generally admitted. The relation between these coronary and myocardial changes and the symptoms of angina pectoris has long been the subject of speculation, but it may safely be asserted that none of the theories hitherto advanced has afforded a perfectly satisfactory explanation. The theory of "intermittent claudication" which, according to Osler, was originally advocated by Allan Burns, has been employed in the interpretation of the connexion between the coronary affection and the symptoms of angina pectoris. This interesting morbid condition is observed in the horse and occasionally in man and depends on arterial thrombosis or embolism whereby a large muscular territory, usually one or both limbs, is suddenly deprived of blood and becomes temporarily paralysed. The muscular paresis is apparently attended by great suffering and it is suggested that the pain and presumably the other phenomena of the anginal paroxysm are, in like manner, dependent on coronary ischæmia. It is, however, doubtful whether coronary thrombosis in man gives rise to pain and apart from this objection recurrent and frequently repeated attacks of angina which may occur without any appreciable disturbance or alteration in the action of the heart could not possibly be due to intermittent claudication.

The symptoms of angina pectoris and more particularly the pain that is so prominent and characteristic a feature of the paroxysm have been ascribed by many distinguished authors to cramp of the cardiac muscle. The most extraordinary divergence of opinion appears with respect to this theory. Many eminent authorities deny that the cardiac muscle is capable of cramp, while other equally illustrious writers assert that this kind of painful muscular contraction can, and does, occur. From a physiological standpoint, however, there is no evidence that the heart is capable of the cramp-like contraction that is observed in skeletal muscles. And if the possibility of cramp of the heart be admitted its occurrence even when localised would surely interfere with the orderly and uniform performance of the cardiac systole and in this way lead to much greater disturbance of the action of the heart and of the rhythm and character of the pulse than is commonly found to be the case. Furthermore, cramp of the heart does not account for the angor animi or sense of impending death which is a characteristic feature of the anginal attack. Why, too, does not cramp occur in connexion with disease of the right ventricle? Why, too, if cramp be concerned in the production of the symptoms of angina pectoris should the pain be relieved by the establishment of mitral regurgitation? Why, since the conditions which presumably favour the occurrence of cramp are not infrequently fulfilled, should the phenomenon be so rarely observed? Why should cramp so rarely affect the heart of the class of patients who come to hospitals? It is necessary to obtain a satisfactory reply to these questions before cramp of the heart be admitted as the cause of angina pectoris.

Current theories of angina pectoris link together cramp and paralysis of the cardiac muscle. But is not this blowing hot and cold with the same breath; are not these conditions the antithesis of each other, and mutually destructive from a causal point of view? Be this as it may the objections urged above to the agency of cramp apply equally forcibly to the operation of paralysis of the cardiac muscle as a cause of the anginal attack. Distension of the heart and stretching of the nerve elements in the cardiac wall cannot be a cause of the phenomena of angina if associated with increased arterial pressure, since the two conditions are impossible at the same time. Moreover, dilatation and stretching of the cardiac walls are frequently observed and are not attended by the symptoms of angina pectoris.

The phenomena of the anginal attack have been attributed by a large number of eminent authorities to neuralgia or neuritis of the cardiac nerves. The objections to this theory are that inflammatory and degenerative conditions of the cardiac nerves have frequently been observed without any of the symptoms of angina pectoris. Again, in those cases of angina in which nerve changes have been found there have also been observed well marked aortic and coronary atheroma, with or without myocardial degeneration. Neuralgia and neuritis of the cardiac nerves have also been found in association with symptoms which do not resemble those of angina pectoris. The mode of onset of the anginal paroxysm and the rarity of its occurrence among women are features opposed to the purely nervous theory of its mode of production. Moreover, the angor animi is not explained by the theory under examination, nor does neuralgia of the cardiac nerves afford a satisfactory interpretation of the almost invariably fatal termination of angina pectoris.

Professor Clifford Allbutt is of the opinion that the pain of angina pectoris arises in the aorta and in cases of chronic disease of this vessel, at all events, is due to tension and stretching of the degenerated aortic walls. I cannot help thinking that for so able and brilliant a pleader Professor Allbutt's advocacy of this theory is somewhat half-hearted.

The hypothesis in question does not permit the coronary and myocardial disease any causal influence in the production of the anginal attack. It is to be observed, however, that these changes in relation to the aortic disease are advantageous and conservative inasmuch as they make for lessened aortic blood pressure and therefore diminished aortic stress. A high blood pressure in the aorta of protracted duration is common enough without the incidence of anginal symptoms. Moreover, those occupations which are prone to give rise to aortic strain and stress do not furnish any large proportion of the cases of angina pectoris—indeed, angina pectoris is rarely observed among blacksmiths, labourers, navvies, porters, and the like. Nor, so far as I am aware, does this hypothesis attempt to explain the sense of impending death which, as I have already insisted, is one of the central features of the anginal seizure. It seems to me that Professor Allbutt is much nearer the mark when he suggests that in addition to the static changes which are found there is a dynamical factor in the causation of this symptom group.

The vaso-motor phenomena that are observed in connexion with angina pectoris will be considered later. A hypothesis which aspires to elucidate the mode of production of the symptoms of angina pectoris must account not only for the dolor pectoris but also for the angor animi. It must likewise afford a satisfactory interpretation of the character of the pulse and of the vaso-motor phenomena associated with the paroxysm. The various theories which have been under review fail to satisfy fully these requirements and herein lies the justification, if one be needed, for yet another attempt to explain the mode of production of this remarkable and enigmatical syndrome. It is now generally allowed that disease of the coronary arteries and of the myocardium is in some way associated causally with the incidence of angina pectoris. The coronary atheroma, which is the morbid condition usually found, and the myocardial degeneration are unequally distributed over the wall of the heart. Furthermore, careful microscopical examination usually reveals a greater degree and extent of myocardial disease than the macroscopical appearances indicate. It is probable, too, that the nervous tissue—i.e., ganglia and nerve fibres—distributed over the wall of the heart suffers in common with the muscular substance of the organ and tends therefore to undergo similar degenerative changes. I would again insist on the fact that in both cases the morbid changes have a "patchy" irregular disposition.

So long as the heart is acting quietly the areas of degenerated muscular tissue are able, even with a relatively insufficient blood-supply, to take their share in resisting and overcoming the intra-cardiac pressure during systole. So soon, however, as the work of the heart is increased, as, for instance, by exertion, emotion, &c., the area or areas of degenerated muscular wall are at a double disadvantage, inasmuch as the diseased and partially occluded coronary vessels are unable to satisfy the increased demand for blood to the territories or patches of deteriorated muscular tissue. The areas of degenerated ventricular wall are thus unable to take their proper share in resisting the increased intra-cardiac pressure and in consequence undergo more or less distension and stretching. Herein lies the explanation of the pain experienced during the anginal seizure, since the affected portions of the ventricular wall contain nervous tissue in an unduly impressionable and irritable condition, which must be subjected to a considerable degree of stretching and tension. In other words, the hypothesis I suggest ascribes the pain experienced in the anginal paroxysm to localised distension and stretching of the ventricular wall. If this hypothesis be well founded it must also satisfy the requirements that were detailed when the question of cramp of the cardiac muscle was discussed and I think this will on examination be found to be the case.

The hypothesis does not entail any interference with the regular and uniform performance of the ventricular systole; the wave of contraction passes uninterruptedly from apex to base, but over certain portions of the ventricular wall it is qualitatively and quantitatively deficient. In these conditions the action of the heart and the rhythm and character of the pulse may remain, so far as physical examination is concerned, undisturbed and unaltered, and in the majority of anginal seizures this state of affairs obtains. It is conceivable, however, that should the area or areas of degenerated ventricular wall exceed a certain proportion in relation to the amount of sound muscular tissue the heart might falter, the pulse become irregular, and the blood pressure fall. This sequence of events has also been observed, more especially in old-standing cases and in the terminal stages of frequently repeated anginal attacks.

The establishment of mitral regurgitation in the course of angina pectoris relieves the intra-ventricular pressure and in this way diminishes the stress on the cardiac wall, and hence the degree of distension and stretching of the diseased muscular territories. Nitrites and other vaso-dilators owe their beneficial influence to a similar mode of action—viz., the reduction of intra-ventricular pressure. The safety-valve action at the tricuspid opening effectually precludes the operation of the conditions which might otherwise give rise to undue stress on the wall of the right ventricle and it is for this reason, I take it, that anginal phenomena are rarely if ever associated with disease on this side of the heart. Again, the hypothesis which I suggest provides a feasible and attractive explanation of the angor animi which is usually more or less neglected in the current theories of the pathogenesis of angina pectoris. It is obvious that if distension and stretching of localised areas of the cardiac wall take place during systole the ventricular parietes are *simultaneously* undergoing contraction and expansion. The effect of this dynamical perversion of the cardiac movements on the impressions transmitted to the cardiac centre during the ventricular contraction must be contradictory and antagonistic, and the intensity of the opposed efferent impulses will be influenced by the relative amounts of sound and degenerated muscular tissue and also by the degree of extra work demanded of the heart. The cardiac centre must in these circumstances be thrown into a turmoil, and it is hardly a matter for surprise that a threatened disorganisation of the very citadel of life should occasion the sensation of impending death. Moreover, the perturbation of the cardiac centre spreads, no doubt, to adjacent centres and herein lies the explanation of the vaso-motor phenomena as well as of the nausea, vomiting, flatulence, hiccough, and so forth which so commonly accompany the anginal paroxysm.

A few subsidiary and contingent conditions still remain for consideration. The extraordinary variability in the incidence of anginal attacks is explicable on the assumption that the coronary and myocardial affection does not always provide the exact conditions for the production of localised stress on the ventricular wall. Indeed, it is not unreasonable to surmise in the light of the present hypothesis that the production of an anginal seizure in coronary and myocardial disease is always more or less of an accident. Clinical observations appear to bear out this supposition. The occurrence of sudden death can be explained in two ways. Thus the sudden arrival at the cardiac centre of equally balanced antagonistic impulses might inhibit the action of the centre, or that portion of the ventricular wall which is known as Kronecker's centre in the dog and is situated in the lower portion of the upper third of the inter-ventricular septum may be the seat of disease (coronary or parietal) and hence of distension and stretching in the manner previously indicated, so that sudden death may be due either to a reflex or to a local cause.

The remarkable immunity from anginal symptoms that is displayed by the class of people who seek advice and treatment at hospitals is, I imagine, due to the fact that the conditions of life in which these patients live lead to more general and extensive myocardial degeneration and hence to more readily produced failure of the heart than is the case with the more well-to-do members of the community. Angina sine dolore is explained on the assumption that the deterioration of the nervous elements in the cardiac wall becomes so great that they fail to react to stimuli which ordinarily give rise to the sensation of pain. It is extremely interesting to observe that, under the operation of the causal factors I suggest, the incidence of this form of angina pectoris justifies a serious prognosis, since it implies grave deterioration of the wall of the heart.

The relation between "pseudo" angina pectoris, or angina cordis vasomotoria as I prefer to call it, and angina pectoris still remains to be discussed. In angina cordis vasomotoria the essential feature of the paroxysm is, as Solis-Cohen has pointed out, a vaso-motor ataxia, whereby the heart is suddenly exposed to stress which, after a period of stormy nervous action, subsides and enables the organ again to obtain control of the circulation. The cardiac embarrassment, in these conditions, is due to sudden and general arterial constriction, which in turn depends on the operation of imperfectly controlled central and peripheral stimuli on unstable and unduly sensitive vaso-motor and nervous centres.

In angina pectoris, on the other hand, although the general arterial blood pressure is probably always above the normal, the vaso-motor phenomena are, in part at least, secondary and not primary features of the attack. It is possible, indeed not improbable, that spasm of the coronary arteries (which are affected in common with the rest of the arterial system) plays a similar but subordinate rôle in the production of cardiac pain in angina cordis vasomotoria to that which organic disease of these vessels does in the causation of an attack of angina pectoris. Moreover, it is conceivable that long-continued and frequently repeated attacks of angina cordis from any cause might ultimately lead to disease of the coronary arteries and myocardium and in this way the various forms of angina may merge imperceptibly into one another. From this point of view, then, the existing antagonism may be resolved into a harmonious whole by means of which the incidence of cardiac angina is freed from the difficulties which have hitherto beset the solution of its occurrence and mode of production.

Upper Berkeley-street, W.

A CLIMATOLOGICAL ASPECT OF THE NAUHEIM TREATMENT OF DISEASES OF THE HEART.

BY LESLIE C. THORNE THORNE, M.D., B.SC. DURH.,
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IT is now many years since the Nauheim treatment of diseases of the heart was first practised in England, and those who have devoted special attention to the subject have had time to observe the effects of the English climate upon it and have been able so to regulate its application as to produce the best results obtainable, these results being in many cases of a highly satisfactory nature. There are still, however, a large number of medical men who either do not use this method of treatment at all or do not give it that place of importance as a therapeutic agent which it rightly deserves. The reason for this, I believe, lies in the fact that the Nauheim treatment when administered in England has in some ways to be modified and adapted to the climate, whereas many medical men who have given it what they believe to be a fair trial have prescribed the comparatively long and frequent baths and the frequent resistance exercises that often produce good results at Nauheim, but, according to my experience in London, only benefit a small minority of mild cases of heart disease and do definite harm to the more serious cases.

As I am convinced that many who have hitherto found this treatment of little use in England would be led to regard it as a really valuable therapeutic agent were they to adopt the methods of administration that I have found most successful in London, I do not hesitate to give a short sketch of a course as I have carried it out for some years with very satisfactory results, especially in cases which have not been greatly benefited by rest, the administration of drugs, or other methods of treatment. In giving this sketch I shall endeavour to mention all the really important points to be attended to, so that any medical man who has not hitherto administered the Nauheim treatment may be able to do so by carefully carrying out the directions given.

The administration of the baths.—Taking, for example, a case of dilated irritable heart, a sequel of influenza, causing symptoms of vertigo, palpitation, dyspnœa, insomnia, cardiac pain, lassitude, and general invalidism, I begin by giving a three or four minutes' bath at a temperature of 97° or 98° F., containing from four to five pounds of Droitwich salt and from five to six ounces of calcium chloride. The pulse is carefully noted before, during, and after the bath and the result aimed at, and usually obtained, is a diminution in frequency, an increase in volume, and a lowering of tension. The patient goes to bed for one hour after the bath and is not allowed during this time to read, write, or talk. A bath of similar strength, temperature, and duration is given the following day. On the third day the Schott exercises are usually given instead of a bath, the patient resting for a minute or so between each exercise and lying down for half an hour after them.

Frequency of baths.—The baths are given on two consecutive days and the exercises on the third day for the first week or fortnight, according to the severity of the case and the result produced upon the heart's action. After the first week or fortnight baths are given three days in succession with an interval for exercises on the fourth day. In my opinion it is a mistake to give baths for more than three days in succession even towards the end of the course.

Strength of baths.—If the patient does well and the circulatory system reacts well I increase the strength of the baths by one pound of sodium chloride and one ounce of calcium chloride every second bath up to the tenth or twelfth. To the tenth or twelfth bath I add half of one of Sandow's effervescing packets, at the same time reducing the sodium chloride by about two pounds and the calcium chloride by about two ounces. If this change proves satisfactory I again start, raising the strength of the baths as in the first instance, increasing the effervescence to three-quarters of a packet at about the sixteenth bath, and a whole packet at the twentieth. The number of baths taken in a course varies from about 25 to 30, any greater number being, in my experience, likely to weaken the patient and to decrease rather than to increase the good that has been done. By the end of the course the patient is having a bath containing from 12 to 14 pounds of sodium chloride, from 14 to 16 ounces of calcium chloride, and one boxful of Sandow's effervescing tablets.

Duration of immersion.—As I have previously said, I begin by giving a three to four minutes' bath and with an average case I find that the best plan is to lengthen the time of immersion by one minute every second bath, curtailing it, however, by two or three minutes when the first effervescing bath is given.

Temperature of baths.—The first bath is given at a temperature of 97° or 98°, this temperature being lowered 1° every second bath down to 94° or even 93° in exceptional cases, but it is often found that a good reaction cannot be obtained with a temperature below 96° and in these cases that temperature is adhered to throughout the course. At Nauheim, where the treatment is only given from the beginning of May to the end of September, baths of a lower temperature may have some advantages, but it is my experience that a good reaction is not obtained from a bath given at a lower temperature than 93°.

The administration of the exercises.—The exercises should be given by as experienced an operator as possible and by one who has been trained to watch the pulse and to regulate the resistance given by the effect produced. If increased arterial tension and rapidity of pulse are produced, then the exercises are being given too forcibly and too rapidly and are doing harm rather than good. As a rule, if the exercises are properly given, they rarely fail to lower the rate and tension of the pulse and to increase its volume. I only give the exercises on the days when there is no bath taken, as I believe this is the wisest plan to pursue all through the course. I am certainly convinced that to give both bath and exercises on the same day for a longer period than the last week of the treatment is unwise and I am doubtful whether even this is advisable except in cases of very slight cardiac trouble. The exercises are by no means as powerful an agent as the baths and if no experienced operator is procurable it is best to omit them entirely.

The general care of a case during treatment is of great importance: no definite rules can be laid down which would be suitable to all, but it is essential that the patient should absolutely give up business and social engagements and should, if well enough, take a prescribed amount of walking exercise both morning and afternoon and have the digestion and bowels well attended to. That these general directions carefully carried out help to a satisfactory result is manifest, but that they are not in themselves enough to produce that result I have proved, as I have often given cases general treatment for some time before using the Nauheim baths and have failed to obtain improvement as rapid, satisfactory, or lasting as that resulting from a course of baths and exercises.

I have not entered here into a discussion with regard to the forms of cardiac disease most suitable for treatment, as that is not within the scope of this paper, but in advising the treatment and giving a prognosis as to the result it must always be remembered that an organically diseased heart cannot be converted into a sound organ by this or any other method of treatment, but that a dilated and enfeebled heart with flabby muscular walls and imperfect contractile powers can be cured by this method in a way that, in my experience, is not possible by any other form of treatment, the reason for this being that whereas digitalis and other allied cardiac

tonics whilst stimulating the heart increase the arterial tension the Nauheim treatment produces a dilatation of the peripheral vessels by the baths and of the muscle vessels by the exercises, thereby lowering arterial tension and giving the heart a comparative rest.

In conclusion, I would say that there is nothing new in the methods of procedure I have endeavoured to outline in this paper, but as I have not come across any similar description in the medical press, I trust that it may be of use to those who are anxious to give the Nauheim treatment a trial and that it may be the means of inducing some who have never practised it to do so, for I am convinced that, if given in the manner I describe, the Nauheim treatment is one of our most valuable therapeutic agents in the treatment of heart disease.

Inverness-terrace, W.

DIABETIC GANGRENE OF THE TOE; AMPUTATION OF THE TOE: RECOVERY.

BY CHARLES FISHER, M.B., B.S. DURH., M.R.C.S. ENG., L.R.C.P. LOND.

ON Sept. 17th, 1902, I was consulted by a stout elderly man who complained of the middle toe of his left foot causing him pain. Upon examination it was seen to be acutely inflamed and in a sodden condition, with a hard corn on the dorsal surface of the last interphalangeal joint. The history given was that the patient had always led a very active life and had enjoyed excellent health till about eight or nine years before when he had quinsy; since then he had always felt unduly sleepy and tired during the latter part of the day. He had had the corn for a number of years, but it had never caused him any trouble till about a month previous to his seeing me, when it became painful and the toe swollen, the pain frequently keeping him awake at night. The toe was washed with a solution of carbolic acid (1 in 60) and dressed with cyanide gauze, but the condition did not improve and by the 21st the skin covering the last two phalanges was purple in colour and sensation was somewhat diminished. By the 23rd this portion of the toe was quite black and there was an entire absence of sensation. Upon asking the patient if he had been suffering from inordinate thirst, had passed more urine than formerly, or had had an increased appetite, I received a negative answer to each question. His tongue was clean and moist, his teeth were good but much discoloured, and his bowels were opened regularly every day. The liver was not enlarged. The heart and lungs were normal; the pulse was 76, regular, of good volume and tension; the vessels were not thickened. The skin of both feet was somewhat harsh and dry. Upon examining the right foot the distal portion of the last phalanx of the middle toe was dark brown in colour, horn-like in structure, and devoid of sensation. The patient said that this toe had been in much the same condition for the last two or three years. The urine was rather pale in colour, acid, of specific gravity 1038, and contained much sugar, but no albumin or excess of phosphate, and no diacetic acid. Diabetic food and half a grain of codeia three times a day were ordered. The quantity of urine passed for a number of days averaged 80 ounces and the quantity of sugar 1440 grains, the amount not being diminished in spite of treatment. By the 26th the line of demarcation was forming on the dorsal surface at the first interphalangeal joint, whereas on the plantar surface it was as far as at the metatarso-phalangeal joint. The toe was now being dressed with boric lotion (ten grains to the ounce) and cyanide gauze. During this time the patient was taking his food well and sleeping well; his temperature was not raised and his pulse was 80. Pulsation could be felt in the dorsalis pedis and posterior tibial vessels, but it was weak.

From this date onwards the condition of things gradually became worse, the foot becoming swollen and inflamed and a most offensive odour proceeding from the toe. His temperature was 99·8° F. and his pulse was 90. By Oct. 4th the line of demarcation had completely formed and on the 6th Mr. H. F. Waterhouse came down from London in consultation and amputated the toe at the metatarso-phalangeal joint. There was free hæmorrhage and a considerable amount of pus escaped. As the foot was in such an inflamed condition a counter opening was made on the dorsum of the foot and a gauze drain was passed through. The flaps of the wound were not sutured together, but it was well packed with cyanide gauze. After the operation the leg was kept well elevated and protected by a cradle. The distal phalanx was found to be completely necrosed. From the following day and onwards until the inflamed condition of the foot had subsided it was dressed with warm boric fomentations; since then with cyanide gauze and boric lotion (10 grains to the ounce). On the 8th the wound was again offensive and gangrene appeared in the deep part of the wound, but fortunately it did not spread to any great extent and by degrees separated in the form of a slough. After the operation the patient was ordered, in addition to the codeia, a quarter of a grain of hydrochlorate of morphia three times a day and within a few days from taking the morphia the amount of sugar in the urine became less; the dose of both drugs was increased until the patient was taking three grains of each daily. The wound and sinus filled up very slowly with granulation tissue and by Christmas they were quite healed, on which day the patient came downstairs for the first time since the operation. During the first week of being downstairs the urine was quite free from sugar, but ever since then there has been a slight amount present, the specific gravity being 1020. When the patient had been downstairs for a few days the dorsum of the foot became œdematous, and this condition persisted for about a month, but as this began to subside œdema began to appear in the leg and it still exists. During the latter end of January the gangrenous portion at the distal end of the middle toe of the right foot separated, leaving healthy skin underneath. Since the beginning of the illness in September small pustules and purpuric spots have frequently appeared on various parts of the body and extremities. The patient is now leading a fairly active life and is able to attend to his business.

This case presents several points of interest in that the classical symptoms of diabetes were absent: the patient was a stout man and had not lost flesh, had not suffered from thirst, increased appetite, or passed an excess of urine; moist gangrene occurred on the left foot, dry on the right, and the corresponding toes were affected as in Raynaud's disease. The patient had had no business or family trouble and all his relatives had been healthy, living to an old age, with the exception of a maternal uncle who died from gangrene, but whether diabetic or not is not known.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF BLACKWATER FEVER TREATED WITH LIQUID EXTRACT OF CASSIA BEAREANA.[1]

BY DR. H. CORKE,
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I RECEIVED an urgent call on Jan. 26th, 1903, to proceed to Weti, some 18 miles away, to attend a woman engaged in missionary work who was said to be suffering from blackwater fever. I accordingly saw her on Jan. 27th. She had been invalided home some years before for an attack of blackwater fever. She had been suffering on and off from attacks of ordinary malarial fever for some time previously to my seeing her and had been taking sulphate of quinine. I learned that on Jan. 26th her urine had suddenly assumed a very dark appearance and had become very scanty in quantity. Her temperature at that time was 105° F. She had pains all over the body and there was a tendency to jaundice. During the night of the 26th she had several fits of vomiting and she slept only in snatches of a few minutes at a time. On the morning of the 27th general jaundice was well marked, the conjunctiva being very yellow,

[1] A full account of the botanical characters and medicinal properties of cassia Beareana, by Dr. D. R. O'Sullivan-Beare and Mr. E. M. Holmes, F.L.S., was published in THE LANCET of Feb. 1st, 1902, p. 282.

with pains all over the body; the urine was quite black, scanty in quantity, and was passed frequently; the temperature was 103° and the pulse was 88 per minute, strong, and regular. As the bowels were constipated I administered three grains of calomel. I prescribed 15 minims of liquid extract of cassia Beareana well diluted with water, to be given every half hour at first and afterwards every hour. For nourishment Brand's extract of meat was given. To allay the thirst from which the patient was suffering I prescribed rice- and barley-water. I gave champagne occasionally in small quantities. After the first dose of cassia Beareana all vomiting ceased, the patient dozed on and off throughout the day, and the temperature fell gradually from 103° at 11 A.M. to 99·8° towards evening, when an enema was administered which acted fairly. The patient passed a much better night, had no headache, and slept at intervals. On the morning of the 28th her temperature was 100°, the jaundice was still very marked, and her pulse was 90 per minute, good and regular. She vomited some bile at 6 A.M. and an enema was administered which produced a large motion, constipated in character and containing scybalous lumps. Cassia Beareana was administered every hour during the day. Towards evening a distinct improvement was observable in the urine voided, which was fully 50 per cent. lighter in colour than it had been in the morning. The temperature remained at 100° all through the day, there was no vomiting, and the patient took nourishment well. On the 29th the jaundice steadily diminished, the urine became practically normal in colour, and the tongue was less furred. The dose of cassia Beareana was diminished to ten minims administered every two hours. The temperature ranged from 100° to 101° during the day; there was no vomiting. The patient took nourishment freely and slept much in the course of the day. The urine voided towards evening was quite clear. On the 30th it was found that the patient had passed an easy night. The temperature was 101°, the jaundice had practically disappeared, and the urine was clear and was passed freely. As all the urgent symptoms had now disappeared I left the patient in charge of an experienced nurse with instructions to continue the cassia remedy and to communicate with me should any fresh symptoms arise.

I am of opinion that recovery was due solely to the beneficial action of the drug given—namely, liquid extract of cassia Beareana—the patient being advanced in years and this being her second attack. I should most decidedly administer the same drug should I ever meet with any more cases of blackwater fever and I would give it with the greatest confidence.

Chaki Chaki, Pemba.

A CASE OF FULMINATING APPENDICITIS WITH SEPTIC PERITONITIS.

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THE following case presents one or two points of interest, the chief one being the distance travelled in the removal of the patient to the infirmary. This was done with ease under the influence of morphia and with apparently no ill effects.

The patient, who was a female, 26 years of age, was perfectly well on Dec. 4th and first came under medical observation on Dec. 5th on account of pain in the "stomach." On examination slight pain and tenderness with a certain amount of dulness were found to exist in the right iliac region. Her pulse-rate was 90 and her temperature was 99° F. On the following day the symptoms were much the same. On the 7th, less than 48 hours from the commencement, she complained of great pain in the right iliac region and it was then found that there were tenderness and dulness in the right flank, tympanites, and loss of liver dulness. Her temperature was 101° and her pulse-rate was 130. A diagnosis of perforation of the appendix was made. She was then put well under the influence of morphia and removed a distance of two and a half miles to the infirmary. The removal was borne very well. On admission the patient complained of no great pain; the physical signs were the same as above enumerated. A consultation was held at which the previous diagnosis was confirmed and an operation was decided upon.

The operation was performed on Dec. 7th by Dr. E. S. Norris, senior surgeon to the infirmary. An incision was made over McBurney's point about three and a half inches in length. On opening the peritoneal cavity a quantity of offensively smelling pus escaped but there was no free gas. Some coils of intestine covered with flakes of lymph were floating free in the fluid. There was also some matting together of the other coils and on breaking down a few adhesions pockets of a clearer fluid were found. The appendix was not seen, so no attempt was made to remove it. The peritonitis extended right down into the pelvis and as far as the hand could reach in the abdomen. The cavity was then washed out with warm boric lotion of the strength of 1 in 40. During this process the patient, who had been anæsthetised with chloroform, stopped breathing, whereupon artificial respiration was performed and injections of strychnine and ether were given. The washing out was also stopped. When she had recovered somewhat a Keith's glass drainage-tube was inserted right down into the pelvis and absorbent dressing was applied over this. She was then removed to the ward. She had recovered from the effects of the anæsthetic but was very collapsed, so further hypodermic injections of strychnine and ether were given and also a nutrient enema containing two ounces of brandy and the yelk of one egg. Some time afterwards she vomited twice and in the evening passed a well-formed motion. Rectal feeding was continued every two hours for two days. On the second day after the operation feeding by the mouth was begun and as no vomiting occurred this was continued in gradually increasing quantities, peptonised milk, eggs, and brandy being given. The bowels were kept open by injections of two drachms of glycerine about every other day. The day after the operation the patient's general condition was fairly good but she had the facies abdominalis well marked. The wound was dressed frequently and about three ounces of offensive pus were withdrawn daily by the syringe. The glass tube was kept in for a week and then an indiarubber one was substituted. During the first week the whole thickness of the abdominal wall, about an inch in width for the entire length of the wound, sloughed away and the bowel was seen at the bottom of the wound. The patient progressed well from this time and is now quite well, the wound having healed completely.

Windsor.

NOTE ON CONDITIONS MODIFYING EXANTHEMATOUS ERUPTIONS.

BY JOHN REID, M.A., M.D. ABERD.

IN medical practice there is often a temptation to diagnose a recrudescence of a previous attack, or even a fresh zymotic disease, on the appearance of a fresh eruption, while probably sight is lost of certain factors in connexion with such cases—namely, (1) the fact that the skin has passed through an inflammatory stage and is on that account a *pars minoris resistentiæ*; (2) that the zymotic disease may have attacked a constitution weakened by rheumatism or gout, where rashes often appear; and (3) that some local mischief may favour, or rather tend to induce, eruptions. As illustrating the above principles I trust the following cases will prove interesting.

CASE 1.—A girl, aged nine years, with a rheumatic diathesis suffered from a burn of the second degree on the leg covering an area two inches square. Bronchial catarrh and herpes on the face and eyelids preceded varicella. The mouth was full of pustules and it was extremely difficult to feed the patient, as the state of the lips and mouth interfered seriously with movement and the irritation of food matters was great. Lichen urticatus and general desquamation followed the varicella. Quinine and cod-liver oil formed the dressing and the administration of an alkaline stomachic mixture completed the treatment.

CASE 2.—A boy, aged 12 years, passed a tænia solium after a dose of male fern. In a week he had an attack of typical measles, with fever and bronchitis. He was treated with an ammonia mixture. In this case also the rheumatic diathesis was present. Koplik and Filatow's spots were seen. The rash disappeared on the sixth day and on the following day an exactly similar rash without fever—erythema morbilliforme—suggested a return of measles. There was intolerable itching. After replacing the ammonia mixture by a mild stomachic the rash and itching disappeared within 24 hours and were followed by desquamation.

CASE 3.—A male child, 11 weeks old, suffered from proctitis with rectal prolapse and bubonocele of the left side.

The symptoms improved under lead lotion and belladonna and the internal administration of bismuth. Pneumonia of the left base came on, necessitating the administration of brandy. Next followed typical measles with Koplik and Filatow's spots. The measles lasted for six days and then pneumonia returned in the left base. A speedy desquamation followed. An erythema of one day's duration came on and finally herpes over the left groin and left buttock, as well as near the anus and on the anterior third of the penis. The prepuce was inflamed and required treatment. Further symptoms were gastro-intestinal catarrh with green clayey motions and protracted convalescence joined to slight bronchitis, although the child rapidly put on flesh and drank milk heartily. This child, as well as the other members of the family, had rheumatic symptoms. It should be stated that snuffles were present although no other signs of specific disease presented themselves. The teeth of the other members of the family were good and regular as to time. The father and mother were healthy.

Southfields, S.W.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

ST. GEORGE'S HOSPITAL.

A CASE OF EXTENSIVE PERICARDIAL EFFUSION; OPERATION; RECOVERY.

(Under the care of Dr. ARTHUR LATHAM and Mr. H. S. PENDLEBURY.)

A MAN, aged 53 years, came under the care of Dr. Arthur Latham on Sept. 1st, 1902, at St. George's Hospital. He gave a history of good health until the early part of last March. He denied having had syphilis and asserted that he had always been a moderate drinker. In the early part of March he began to suffer from shortness of breath. This symptom gradually became more troublesome and the patient in consequence was obliged to give up work on March 28th. On April 4th the left pleural cavity was tapped and ten ounces of serous fluid were withdrawn. Further small quantities of blood-stained fluid were removed on May 23rd, July 22nd, and August 5th. During August the patient developed marked œdema of the legs and some distension of the abdomen. He also became jaundiced. When he attended at the hospital he complained of sleeplessness and of cold extremities. He was suffering from considerable dyspnœa, with slight cough and expectoration; the face was sallow and somewhat cyanosed; the pulse-rate was 76, the volume being small and the wave full though regular; the respirations were 24 to the minute: the temperature was normal. The legs were markedly œdematous and there was evidence of a considerable quantity of free fluid in the abdominal cavity. The apex of the heart could not be felt nor could it be located by the stethoscope, as no cardiac sounds could be detected; the area of cardiac dulness was much increased. The note over the left axillary base was dull, there was diminution of the voice sounds, and on auscultation distant tubular breathing was heard. Over the base of the left lung posteriorly the note was impaired, there was distant tubular breathing, and a few moist sounds could be heard. The urine had a specific gravity of 1028, was normal in colour, somewhat diminished in amount, and contained a very faint trace of albumin. On Sept. 3rd the patient was given a little chloroform by Dr. Ll. Powell. Mr. H. S. Pendlebury tapped the pericardial sac in the fourth costal interspace one and a quarter inches from the left border of the sternum and drew off 95 ounces of serous fluid which was dark brown in colour owing to the presence of a considerable quantity of methæmoglobin. No further evidence was obtained by a careful examination of the fluid. The patient slept well during the night and felt much more comfortable on the following morning. The heart sounds could now be heard over the præcordial area but were still very faint. During the night 90 ounces of urine were passed. On the 8th the patient was comfortable and the œdema of the legs and the distension of the abdomen were considerably less. He was sleeping well and the coldness of his extremities had diminished. The pulse was of good quality and the wave could be easily felt. The heart sounds, however, were again becoming more distant and the cardiac dulness was again increasing, consequently Dr. Latham asked Mr. Pendlebury to drain the pericardial sac, which apparently had been distended with fluid for several months and was still secreting to an appreciable extent.

The operation was performed on Sept. 9th. Having decided to drain the pericardium for some time it was of the first importance to choose a procedure which would insure drainage from the lowest approachable part of the pericardial cavity. Consequently Mr. Pendlebury determined to perform the operation so clearly described by Dr. Cyril Ogle and Mr. Herbert Allingham in THE LANCET of March 10th, 1900, p. 693, with such modifications as might appear necessary. A vertical incision some four and a half inches long was made with its centre at the lower border of the seventh costal cartilage parallel with, and one inch from, the left border of the sternum. The skin and fascia were reflected inwards and outwards and the abdominal muscles were then detached from the seventh costal cartilage. The cellular interval, "costo-xiphoid space," containing the superior epigastric artery was then broken into, some of the muscular fibres of the diaphragm being torn. As the pericardium was distended it was easily brought into view, but as Mr. Pendlebury wished to have sufficient room to insert the fingers after opening it two inches of the seventh costal cartilage were first removed by cutting it through with bone forceps and disarticulating the fragment from the sternum. The internal mammary vessels were now exposed and held aside. Had it been necessary it would have been easy to secure them. More loose connective tissue, fat, and the triangularis sterni were gently pushed aside and the pericardium—tense and thick—was exposed. Owing to the conformation of the chest the wound was somewhat deep and to obtain more complete and convenient access to the pericardial contents after opening two inches of the sixth costal cartilage were likewise removed. The pericardium was incised where it bulged downwards through the torn cellular space and the cut edges were seized with clips. Some 20 ounces of blood-stained fluid, similar to that removed by tapping on Sept. 3rd, escaped. The incision into the pericardium was increased to allow of three fingers being introduced to examine as far as practicable the heart and parietal pericardium. These were found quite smooth and apparently normal. Unfortunately, the man's chest was very deep and it was not possible to explore thoroughly the back of the heart and pericardium, as can be done so readily in children after this operation. There were no adhesions to be felt and the fingers could be interposed between the heart and the diaphragm. A peculiar vibratile thrill was noticed on palpating the ventricles during systole. These manipulations had no harmful effect on the pulse; indeed, the escape of the remaining fluid had distinctly increased its strength and promoted its regularity. It was only possible to stitch one corner of the pericardium to the skin at the lower end of the wound; a tube was introduced and the upper three inches of the incision were united by silkworm gut sutures. The tube was removed on the fourth day after the operation as it was blocked with the clotted discharge. On the eighth day, the 16th, the stitches were removed, only a small sinus remaining where the pericardium had been sewn to the skin. This sinus did not completely heal till nearly three weeks afterwards, a little easily clotting fluid trickling away from time to time. Throughout convalescence the patient's temperature was normal. On the 16th the patient had improved to an extraordinary extent. He was sleeping well and was free from dyspnœa, there was hardly any œdema of the legs, and there was no evidence of the presence of fluid in the abdomen. The percussion resonance of the sternum was normal and there was no extension of dulness to the right of the sternum. The cardiac sounds could be heard distinctly and the position of the apex appeared to be normal, although the thickness of the patient's muscles made an exact localisation impossible. Towards the base of the left lung there was some impairment

of the percussion note, the vocal fremitus was increased, and the heart sounds were high-pitched, whilst near the vertebral column distant tubular breathing could be heard. The urine was acid and pale, the specific gravity being 1008; no albumin could be detected after Sept. 19th. From Sept. 29th to Oct. 8th the daily output of urea varied from 216 to 468 grains. The patient made an uninterrupted recovery, going into the hospital yard on Oct. 8th and to Bexhill on the 23rd. Writing on Jan. 22nd, 1903, he stated that he felt perfectly well and was able to do his work.

Remarks by Dr. LATHAM and Mr. PENDLEBURY.—The above case is of interest in view of the facts that so large a quantity as 95 ounces was removed by aspiration from the pericardial sac in one operation, that the pericardial sac was opened by means of a new method devised by Mr. Allingham and Dr. Ogle, and that the patient is now well and at work. The pleura was not seen at all during the operation and probably it may be taken that in cases where the pericardium is distended with fluid it is not likely to be seen. If it did come into view it could easily be held aside with the finger. It may be suggested that by beginning the incision into the pericardium at a level just above the base of the ensiform cartilage all danger of opening the abdominal cavity is avoided. Surgically speaking, it may be said that the operation is not difficult to do and only takes a little over 20 minutes. It would seem advisable, however, in cases where a large amount of fluid exists, to withdraw some before the actual operation in order to relieve a little the heart's embarrassment. Since writing the above we are permitted to mention that Mr. Allingham has performed the operation on two other cases with success.

Medical Societies.

CLINICAL SOCIETY OF LONDON.

Skin-sliding as a Means of preventing and removing Cicatricial Deformity.—A Case of Spinal Caries treated by Costo-transversectomy with Complete Recovery.—Prolapse of the Bowel and Prolapse of the Uterus treated by the Injection of Paraffin.

A MEETING of this society was held on March 13th, Mr. HOWARD MARSH, the President, being in the chair.

Mr. T. S. ELLIS (Gloucester) read a paper on Skin-sliding as a Means of preventing and removing Cicatricial Deformity. The process consisted of a daily dressing or massage by means of pinching up the skin around the edge of a wound or a scar and thus stretching or sliding the skin and subcutaneous tissues in the direction required. The process was devised by Mr. Ellis in the belief that when the skin in the neighbourhood of a cicatrising wound was made to slide freely and all adhesion of the cicatrix at the margin of the wound to the tissues beneath was prevented, the contraction of the cicatrix, acting on the skin, would draw it towards and over the area of the wound. Interstitial growth in the extended skin compensated for the extension it had undergone. For the effacement of a cicatrix of any kind (keloidal or other) not only was the attainment of freedom from attachment indicated but also such mobility and redundancy of skin around it as should, for a time, give freedom from tension. This indication might often be completely fulfilled by persistently sliding the adjacent skin towards the cicatrix and using the skin (made redundant) as a handle wherewith to lift the cicatrix from its attachment. Lantern slides were exhibited of a case of severe burn, which had occurred on Jan. 15th, 1902, to a child, aged 11 years, involving extensive destruction of the integument of the neck and chin, and the advantages of the treatment were described. Some calipers which Mr. Ellis had designed to aid the process were also exhibited.—Mr. A. E. J. BARKER recalled an investigation by a committee of that society on keloid which had come to the conclusion that keloid sometimes underwent spontaneous cure. He then referred to a case in which skin grafts had been followed by such rapid growth of keloid that it was thought to be sarcoma, though the subsequent history showed that it was not so.—Dr. W. H. B. BROOK asked what was the exact manner of picking up the skin and for what period of time it had to be picked up.—Mr. ELLIS replied that no knife was required.

Dr. W. H. B. BROOK (Lincoln) read a paper on a case of Total Paraplegia due to Caries of the Mid-dorsal Vertebræ, for which the Operation of Costo-transversectomy was performed with complete recovery. The patient, a youth, aged 17 years, was admitted into the Lincoln County Hospital on Sept. 22nd, 1902, suffering from angular curvature of the spine of a year's duration, for which he had worn a plaster jacket. During the previous four weeks there had been gradually increasing loss of power in the legs, with incontinence of urine. When admitted he presented well-marked angular curvature, the sixth and seventh dorsal spinous processes being the most prominent. There were no tenderness and no signs of any collection of pus. There was well-marked girdle sensation at the level of the epigastrium, with great impairment of sensation below this level. The legs could be moved but not well; the knee-jerks were exaggerated and there was incontinence of urine. For six weeks he was treated by extension applied to both legs, but his condition became steadily worse, paraplegia and incontinence of urine and fæces gradually became complete, and in spite of the greatest care bedsores appeared. A skiagram showed blurring in the region of the seventh and eighth dorsal vertebræ, confirming the diagnosis that tuberculous matter was present. On Nov. 8th the operation of costo transversectomy, as described by Mr. J. Jackson Clarke, was performed, the right transverse process of the eighth dorsal vertebra being cut down upon and removed together with the head and neck of the eighth rib, so that access was obtained to the seat of the disease and the broken-down bodies of the vertebræ were carefully scraped away with a specially designed curved sharp spoon, care being taken not to wound the dura mater or the pleura. The wound was drained, injected with iodoform emulsion containing 1·40 per cent. carbolic acid, and tightly packed with iodoform gauze. The extension was continued. Sensation began to return on the following day and movement on the day after. At the end of three weeks sensation was perfect and movement was good, but it was seven weeks before the patient regained perfect control over the bladder and rectum. The drainage-tube was discontinued on Jan. 8th, the wound was healed by Jan. 25th, and on Feb. 15th the patient was able to sit up after having been fitted with a steel spinal support. He was now able to walk quite well.—Mr. JACKSON CLARKE related how he first came to perform the operation that Dr. Brook had so successfully repeated. In October, 1901, a patient, aged 45 years, rapidly developed total sensory and motor paraplegia from tuberculous disease of the seventh and eighth dorsal vertebræ. Mr. Jackson Clarke performed laminectomy and found that an abscess (formed by the destruction of the posterior parts of the bodies of the two vertebræ) was pressing backwards on the cord. To secure better drainage he performed costo-transversectomy seven days after the first operation. The result was most satisfactory and showed that the second operation would have done all that was required without the preliminary laminectomy. From this experience and that of three other cases Mr. Jackson Clarke came to the conclusion that the removal of the transverse process afforded the best means of access to the vertebral bodies in certain cases. When complete sensory and motor paralysis came on rapidly as in his first case the lateral drainage, whether by removal of a transverse process alone or in conjunction with the head and neck of a rib, should be done at once. When the symptoms were not urgent rest should be tried for some months before proceeding to operate. The main object of the operation was to open the abscess and to establish an aseptic sinus through which a few drops of carbolic solution or some other antiseptic could be injected daily for as long as might be necessary. No attempt should be made to scrape away caseous material or carious bone. The cord was often exposed by destruction of the bodies of the vertebræ and such interference would be highly dangerous. If the paralysis should not be relieved the subsequent performance of laminectomy was in no way interfered with by the lateral opening.—Dr. BROOK, in replying, expressed a preference for a straight spoon.

Mr. STEPHEN PAGET read a paper on Two Cases of Prolapse of the Bowel and a Case of Prolapse of the Uterus treated by the Injection of Paraffin under the Mucous Membrane. The first case was that of a man, aged 65 years, who in 1897 had undergone excision of the rectum for cancer. Ever since the operation he had suffered from prolapse of the bowel with loss of control and had been

compelled to wear a rectal plug. On Jan. 15th paraffin was injected into the prolapsed bowel, forming two hard round nodules under the mucous membrane, so that the opening into the bowel was closed by a sort of valve. Since then there had been no prolapse; the patient had left off his plug and had kept perfectly clean. The second case was that of a patient of Dr. E. Lycett Burd of Shrewsbury. She was 70 years old and had suffered from prolapse of the bowel for 22 years and had undergone five operations. Prolapse occurred on the very least effort and if the motions were loose she had no control over them. On Feb. 15th paraffin was injected under the mucous membrane, forming a hard collar around more than half of the bowel; this produced great improvement, but there was still slight prolapse at times. On March 1st a second injection was made and the opening into the bowel was also narrowed by Mayo Robson's incision and suture. This second operation was followed by some severe pain, but no prolapse had occurred since it was done. The third case was that of a woman, aged 63 years, who for 23 years had suffered from prolapse of the uterus in spite of an operation which had been performed 14 years before. The prolapse occurred even when she was in bed, if she only coughed or turned over. By day she supported it with a napkin. The vagina was so greatly dilated that it would not retain a pessary and there was complete prolapse of both walls and of the cervix which was greatly enlarged. On Feb. 25th paraffin was injected in various directions under the mucous membrane of the vagina, mostly in the posterior wall, and under the mucous membrane of the cervix. Since this injection she had had no prolapse, not even when she strained at the closet or "bore down" forcibly in the erect posture. The cervix was high up, both walls of the vagina were indurated, and the recto-vaginal septum was about half an inch in thickness. Mr. Paget said that he brought these cases thus early before the society because he felt sure, from his experience of the use of paraffin in 40 cases of sunken nose, that the good results in these cases of prolapse would be well maintained. If it were at any time necessary to add a little more paraffin this could easily be done.—Mr. BARKER mentioned a case of prolapse of the rectum in which he had adopted this method with complete success. He had used a mixture of paraffinum molle and olive oil. A small-celled infiltration resulted which aided in achieving the result. In the hands of some surgeons embolism and other disasters had resulted.—Dr. G. H. D. ROBINSON had seen Mr. Paget's case of prolapse of the uterus and the success was certainly quite remarkable. The operation was not suitable unless the patient had passed the child-bearing period, but in other cases this method offered every prospect of success.—Mr. GEORGE EASTES asked if it was necessary to keep the stools liquid or not in cases of rectal prolapse.—Mr. PAGET, in replying, said that the bowels should not be relaxed, rather the reverse. He thought the possibility of disaster had been exaggerated. If cases were treated as out-patients and 15 cubic centimetres of paraffin were injected at one sitting or the wax was too soft it would not be surprising that embolism should result. The melting point of paraffin was of considerable importance; it should not be below that of the body temperature. Reference was made to the case of a man in whom the absence of testicles was compensated for by the introduction of paraffin and who subsequently had typhoid fever accompanied by a temperature of 105° F., when the wax began to melt. The melting point Mr. Paget preferred was between 111° and 115°.

SOCIETY OF ANÆSTHETISTS.

New Form of Chloroform Regulator.—Apparatus for administering Ether, Chloroform, or Mixture.

A MEETING of this society was held on March 6th, Mr. WALTER TYRRELL, the President, being in the chair.

Mr. A. VERNON HARCOURT, F.R.S., read a paper on his new Chloroform Regulator.

The PRESIDENT, in introducing Mr. Harcourt, said that he (Mr. Harcourt) had been good enough to send them a report of a paper which he had read before the Royal Society on the Percentage Dosage of Chloroform. Since then he had been invited to become a member of the committee of the British Medical Association on the dosage of chloroform and had asked that committee to allow him to show his apparatus and to read a paper on the percentage dosage of chloroform before the Society of Anæsthetists. He would now ask Mr. Harcourt to read his paper.

Mr. HARCOURT said that during many years past he had been concerned with the measurement of light and to provide a standard light for this purpose he had used a volatile hydrocarbon which was called pentane as being the fifth member of the series of paraffins. In dealing with this liquid he had accidentally inhaled some of its vapour and observed that it produced sensations similar to those caused by the inhalation of small quantities of chloroform. Since the substance was readily obtained in a nearly pure condition, was little liable to chemical change, and was almost insoluble in water, it occurred to him that it might be serviceable as an anæsthetic. With the coöperation of Professor Gotch the trial of its physiological properties was made by giving white rats a mixture of air and pentane to breathe. Anæsthesia was readily produced, but it was preceded by a period of excitement; the proportion of vapour to air required was rather large, involving, of course, a corresponding diminution in the proportion of oxygen; and recovery was slow and uncertain. The results of the inquiry formed the subject of a paper read by Professor Gotch before the Physiological Society in 1898. To form a judgment of the effects of pentane upon rats as compared with those of another anæsthetic chloroform was administered in the same manner, and he might confess to having been a little disappointed when it appeared that chloroform was the better anæsthetic of the two. In making these experiments it seemed desirable to find some means of regulating the proportion of air and of anæsthetising gas and of determining what the proportion was. Confining himself now to the case of chloroform Mr. Harcourt tried a method of determination depending upon the action of a hot alcoholic solution of potash. The results were approximately right; about 95 per cent. of the chloroform, of which a weighed quantity had been brought into a flask filled with air, was represented by potassium chloride in the solution. But whatever care was taken the result was always a little too low and he therefore sought, and succeeded in finding, a better method. When a platinum wire was heated to bright redness by the passage of an electric current in a mixture of air, chloroform, and steam, the chloroform was burnt on the surface of the platinum by the oxygen of the air and the chlorine which was probably formed in the first instance reacted, also under the influence of the heated wire, with the steam, forming hydrochloric acid and oxygen. A small quantity of water placed in the flask containing the mixture of air and chloroform served both to supply steam when the bottom of the glass was heated and to dissolve the hydrochloric acid which was formed. After 20 minutes the operation was completed and it remained only to determine the amount of hydrochloric acid in the flask, which might be done by means of a standard solution either of silver nitrate or of alkali. A full account of this method, and the record of the testings with weighed amounts of chloroform by which its trustworthiness was established, was given in the Transactions of the Chemical Society for 1899. In the same paper there was also described a method for charging a current of air with a proportion of chloroform vapour which might be fixed at any desired limit. This method consisted in sending a stream of air through a mixture of alcohol and chloroform and then through water. If the mixture contained only a small proportion of chloroform, then but little chloroform evaporated into and mixed with the air; if the proportion of chloroform in the liquid was larger the amount that evaporated was larger also. By passing the mixture of air with the vapours of alcohol and chloroform through or over water the alcohol was removed, and only air and chloroform passed on in a proportion determined by that of chloroform and alcohol in the liquid mixture. That the liquid used for diluting chloroform in order to diminish its rate of evaporation should be itself volatile was advantageous since when the quantity of both liquids diminished as evaporation proceeded the composition of the mixture remained more nearly constant than if only one was evaporating. After writing this paper it occurred to him that a method might be made on the same principle for the administration of chloroform as an anæsthetic. In order to provide for its administration in sufficient quantity and with a minimum respiratory effort he changed the form of the apparatus. If air travelled over a liquid for a sufficient distance saturation was complete and the resistance was far less than if the air bubbled through.

Mr. Harcourt had found by trial of various proportions that a mixture of 80 parts of alcohol by weight with 20 of chloroform yielded when air was passed over it a mixture of 98 volumes of air with two of chloroform vapour. He had found, and subsequent experience had confirmed the conclusion, that 2 per cent. of chloroform was the maximum amount ever required in producing anæsthesia. To reduce this proportion to any smaller proportion that might be desired he made an arrangement of stopcock and valves by which the 2 per cent. mixture might be diluted to any amount with pure air, a pointer moving on a scale indicating the percentage thus produced. This apparatus was tried at the Oxford Infirmary by Dr. A. P. Parker, a surgeon who had had large experience of anæsthetics during the South African war. The tank filled with water which held the two boxes containing respectively alcohol mixed with chloroform and water was supported on a staging beneath the trolley on which the patient lay and the face-piece was connected with the outlet of the apparatus by caoutchouc tubing. The management of the amount of chloroform administered presented no difficulty and the result was satisfactory, but Dr. Parker represented to Mr. Harcourt that for ordinary medical use a portable apparatus was necessary. For this purpose the limitation of chloroform by dilution had to be given up; and Mr. Harcourt substituted for it a limitation of the surface of chloroform from which evaporation took place. After trying vessels of various size he found that air passed at the ordinary rate of human respiration through the upper part of a bottle containing chloroform the diameter of which was about 1⅝ inches took up 2 per cent. of chloroform. This proportion did not vary as might be expected with the rate at which air was drawn through. When the air entered the bottle slowly it passed from inlet to outlet without complete admixture with the air and chloroform lying over the surface of the liquid and thus a smaller quantity of air was mixed with a smaller quantity of chloroform. On the other hand, when air entered more rapidly it blew upon the surface of the liquid and caused more rapid evaporation, and thus a larger quantity of chloroform. The original instrument had the form of a straight stem to which the face-piece was attached, with branches connecting through a stopcock with this stem, and at their other end with two valve-chambers, one opening into the air and the other attached to a small Woulfe's bottle holding chloroform. The handle of the stopcock terminated in a pointer moving on a divided arc. According to the position the stem was connected either with one branch or the other or partly with both. A prolongation of the stem upwards ended in another valve-chamber which allowed passage to expired, but not to inspired, air. Since the amount of evaporation depended not only on the area of liquid from which evaporation was taking place, but also upon the temperature of the liquid, the operator must be provided with some ready way of observing the temperature. A thermometer could not be read very quickly and its insertion would require the provision of a third tubulure. Specific gravity bulbs were easily seen and answered the purpose well, since the density of chloroform changed rapidly with its temperature. By providing two bulbs, one of which was between floating and sinking when the temperature of the chloroform was 15° C. (59° F.), and the other when the temperature was 12·5° C. (54·5° F.), and placing these in the bottle with the chloroform it would be seen whether the temperature was above 15°, for then both bulbs sank, or below 12·5°, for then both bulbs floated. The temperature should be maintained, as far as possible, between these temperatures, and when this was so one bulb was floating and the other sunk. Since anæsthetising and operation rooms were kept at much higher temperatures than 59° F. Mr. Harcourt used at first bulbs which were adjusted for several degrees higher, but the cooling of the chloroform by evaporation was so great that frequent applications of the hand to the bottle were needed to maintain the higher temperature. Also the proportion of chloroform with a bottle of the size he used was at a higher temperature, rather more than 2 per cent. Mr. Harcourt had made several other changes in this inhaler, to which he proposed to give the name of "chloroform regulator," since he read a paper on the subject before the Royal Society. To enable the face-piece to be placed in any position he had divided the stem into two parts by a cross-branch and had provided each part as well as the cross-branch with swivel-joints. The longer piece of caoutchouc tubing connecting the chloroform bottle with one of the valve-chambers, which allowed the bottle to retain a vertical position when the stem was inclined, was now shortened, since the stem could be held upright. The upper valve-chamber had been removed and the valve transferred to the face-piece. This had the advantage of making expiration easier and limiting it to the face-piece so that none of the patient's breath passed into the body of the instrument. The bottle had been made slightly conical, enlarging downwards; as the chloroform evaporated the interval between its surface and the air inlet necessarily increased and this was balanced by an increase of area. The valves consisted of discs of celluloid held in position by a short neck or continuous strip of the same material, the end of which was fastened down. By cutting this neck of a suitable width the spring which held down the disc against the tube which it covered might be made just sufficiently strong to support the weight of the disc in an inverted position. The movement of these valves gave useful information. That on the face-piece showed clearly whether respiration was full and regular; those connected with the two branches showed by the height to which they were raised how much of the 2 per cent. mixture was being inhaled and with how much air it was being diluted. The proportion was also shown by the position of the pointer on the divided arc. For example, if it was in the middle equal quantities were being inhaled of air mixed with 2 per cent. of chloroform and of pure air—that was to say, the mixture being inhaled contained 1 per cent. of chloroform. From any other position of the pointer upon the scale the percentage of chloroform which was being administered could be read off. Mr. Harcourt had been present at four or five operations at University College Hospital and, so far as he could judge or learn afterwards, the assistant to whom the management of the regulator was committed found no difficulty in maintaining the desired degree of anæsthesia. The proportion of chloroform required to produce anæsthesia in from five to ten minutes was with adults between 1 and 1·5 per cent. and for its maintenance subsequently between 0·5 and 1 per cent. He thought it possible that the actual figures should be lower than these, some uncertainty arising from imperfect fitting or occasional displacement of the mask. But here he was on unfamiliar ground; and he hoped that an account which would be much more trustworthy of the use of the regulator and its advantages as compared with other apparatus or methods for administering chloroform would be given to the society by its President, to whose encouragement during the past two months he was greatly indebted.

The PRESIDENT said that the Society of Anæsthetists was much indebted to Mr. Harcourt for his paper and for the very lucid description of the methods by which his conclusions were arrived at. The idea was one "oft thought before but ne'er expressed so well." Mr. Harcourt had done what had been in all their minds to do but no one had quite accomplished it. Half a century ago Dr. Snow invented an inhaler with two orifices through which the inspiration was made; through one of these the inspired air passed over chloroform and the other was an inlet for pure air, and by slowly diminishing the size of the latter more and more of the inspired air passed over the chloroform until the desired anæsthesia was produced. This was exactly what Mr. Harcourt's apparatus did but nobody before had been able to show approximately what percentage of chloroform was being inhaled at any given moment. The credit of doing this must be given entirely to Mr. Harcourt. Mr. Clover had given them a percentage of chloroform but without any accurate means of regulating it, Junker's inhaler with its many modifications made mostly by members of their society, and various other methods all tended towards the desired end of regulating the quantity of vapour inhaled, but it was only now that they had learned what the percentage really was. Perhaps those present who had used Mr. Harcourt's apparatus would give their experience of it. He (the President) had been much impressed with it and although he thought the arrangement of it was capable of improvement he believed that the principle of it was good and would prove of great service. The President then gave in detail notes of a few cases in which he had used this new instrument. He said that a child, aged three years and eight months, had been satisfactorily anæsthetised for an operation on the elbow and glands of the neck without ever exceeding 0·5 per cent. of chloroform. He had had several adult cases, including iridectomy for glaucoma, removal of the breast, appendicectomy, &c., which had not required more than 1 per cent. and in no case had any patient of his

required the maximum amount of 2 per cent. In one case pallor and failing pulse occurred while using 1·4 per cent., which was an instance of what could not be too strongly insisted on—viz., that a percentage only sufficient to produce anæsthesia was dangerous to a certain number of individuals. The most striking thing about the administrations was the greatly diminished amount of excitement—in fact, in several cases this was entirely absent.

Dr. DUDLEY W. BUXTON said that the society was much indebted to Mr. Harcourt for the very clear way in which he had led them to understand that which had put the idea of the apparatus into his mind. But they had before them that night an actual dosimeter of chloroform. Perhaps the President had not done justice to Clover in saying that there was no accurate method of giving a definite percentage of chloroform. In the apparatus before them they had certainly a means by which they might accurately and definitely know a percentage of chloroform. There was one idea they, as practical men, had to dispute—i.e., that 2 per cent. of chloroform was capable of carrying them through all exigencies. Affairs such as they had to face to-day in the operating theatre were very different from those of 50 years ago. In those days operations which required a death-like stillness were not performed and absolute quietness of the patient was neither asked nor expected. Not only were they now asked to render the patient anæsthetic but to push narcosis to such an extent that vitality was distinctly lowered. They were asked to act on the medulla oblongata and narcosis had to be pushed thus far in order that the surgeon might carry out his operation. They (the anæsthetists) had to do as they were told. He was quite sure that 2 per cent. would not carry them through all operations. Would it not be possible to alter the apparatus in order to provide a 4 per cent. vapour if such were required? The experience which he had had with the apparatus had agreeably surprised him, more particularly as he was somewhat averse to new chloroform regulating inhalers, as so many had been failures. None of them expected to give chloroform with absolute safety and most of the apparatus had fallen short in some important detail. With Mr. Harcourt's he had expected to have moderate success, but the success obtained had exceeded his expectations. It produced a quiet anæsthesia, little or no struggling, and the patients had gone under with a low percentage, beginning with 0·5 and sometimes 0·25 per cent. Dr. Buxton then said that in a case of abdominal section for gastro-enterostomy, where a deep degree of anæsthesia was required, he was unable to produce it and the surgeon asked him to get the patient more deeply under, but he (Dr. Buxton) had failed. That perhaps was owing to want of skill and he was quite ready to be told that he should have tried longer. But in an ordinary hospital this was impossible unless a higher percentage could be obtained. Short of that he could speak in the highest terms of the apparatus. It was necessary to be careful of the position of the bottle, but there was no difficulty in warming it with the hand. Up to the present he had had no unpleasant experiences, but on that point it was necessary to say a few words. It would be most deplorable if the public thought, and a patient could say, "Give me a 2 per cent. and there will be no danger." In giving chloroform at any percentage there was a certain risk; in fact, although the danger might be lessened by using a low percentage, yet there was no absolute immunity. The real action of chloroform was not yet known. There were so many factors to consider that mere percentage dosing was not sufficient to insure safety; for instance, inspiration might be normal but expiration insufficient, and thus the chloroform would accumulate in the system and the nervous tissues become more and more soaked; there were so many other factors that it was beyond the power of man to say that salvation was in any percentage.

Mr. HARVEY HILLIARD observed that he had used the apparatus and had been very much struck with the quiet way in which anæsthesia had been induced, beginning with 0·25 per cent. and working up to 1 per cent., which had been sufficient to produce anæsthesia but not to a sufficiently deep degree and he had had to push on in his first case (which had been the worst and was an abdominal section) to 2 per cent., but this was insufficient to abolish all rigidity. He was working in a temperature of 75° F., but without the specific gravity bulbs, and to try to get a deeper anæsthesia he warmed the bottle, which had only been half filled, with the hand. A little later, however, the boy showing signs of vomiting there was no time to try to deepen the anæsthesia with this apparatus, so he changed to a Skinner, returning to Mr. Harcourt's apparatus when things were smoother, but with the same result. He agreed with Dr. Buxton that 2 per cent. was not sufficient to produce a sufficiently deep anæsthesia in all cases, especially in some abdominal operations. Mr. Hilliard thought at first that his difficulty was due to the face-piece not fitting, but made sure that it was, for the valves were acting perfectly. Mr. Hilliard also mentioned other cases nearly similar. Induction was perfect in all his cases, four-sixths of which were abdominal, but 2 per cent. anæsthesia was not sufficient to deepen the anæsthesia to dilatation of the pupil and in one case without warming the bottle he could not abolish the corneal reflex. One most satisfactory case was one in which craniotomy was performed; anæsthesia was induced and maintained at 1·5 per cent. The patient remained under satisfactorily except when the head was being crushed; then, however, there was a little straining and the chloroform bottle had to be filled up to three quarters and the hand placed round it; this was sufficient to deepen the anæsthesia. The temperature of the room was 60°. Acting on his experience with the method Mr. Hilliard said that he now always filled the bottle three-quarters full.

In reply to a question by Mr. NORTON, Mr. HILLIARD said that induction of anæsthesia took about eight minutes; in his first case it took from eight to ten minutes. He considered that a slow induction gradually working up from a low percentage was best, the induction then being most quiet.

Dr. S. H. BELFRAGE thought that possibly the face-piece and the apparatus might be connected by means of a flexible tube. This would leave the anæsthetist's hands more free.

Dr. G. EASTES wished to know how much liquid chloroform was required to produce a given amount of vapour.

Mr. HARCOURT replied that one volume of liquid chloroform gave 300 volumes at an ordinary temperature and pressure.

Dr. EASTES remarked that he constantly used Clover's regulating chloroform inhaler and found it the best apparatus which he had ever used. The great advantage was that the measured maximum percentage of vapour was all measured out beforehand and this, he thought, was better than making their own percentages as the case proceeded.

Dr. W. J. MCCARDIE being asked for his experience when experimented on with Mr. Harcourt's inhaler answered that it was short but pleasant. At first Dr Buxton had given him 0·5 per cent. for five minutes which had had no effect. After an interval of five minutes he had received 1 per cent.; this was very much stronger, so much so that he had lost consciousness in about one and a half minutes. He believed anæsthesia was so deep that the conjunctival reflex was abolished. The anæsthesia produced was sufficient for such tests as pin-pricks upon his hands, but he did not know if it would be deep enough for abdominal operations. 2 per cent., he considered, ought to be deep enough for all ordinary operations and for average anæsthesia. But he thought for experts that it would be a great advantage if Mr. Harcourt's apparatus could be made to give up to, say, 4 per cent., but for the ordinary medical man it was perhaps an advantage to have the low percentage beyond which he could not go.

Mr. HARCOURT, in answer to the various questions and suggestions to which his paper had given rise, said with regard to that about one hand being always employed in raising the temperature his experience with the bottle was small. He had seen an operation by Sir Victor Horsley which lasted a full hour. The assistant seemed to have one hand free the whole time, the other feeling the pulse or being round the bottle of chloroform. He considered that in the high temperature of a theatre an occasional application of the hand ought to be enough. Certainly something more simple than applying the hand was desirable if it could be found. Concerning the using of more than 2 per cent. he had carefully watched the stop-cock at an operation. The 2 per cent. limit was never reached. He thought that as the common way of giving chloroform was with a loosely fitting mask possibly Mr. Hilliard's difficulty to obtain in all cases a sufficiently deep anæsthesia was due to his not fitting the face-piece with sufficient accuracy, although the valves might still be working. If only two-thirds of the whole inspiration passed through the apparatus and one-third round the face-piece that would make a very considerable difference in the dose. It was quite easy to increase the percentage of vapour

by increasing the size of the bottle. If the cross-section of the bottle were doubled it would give double the percentage of chloroform vapour. In reply to the suggestions of an indiarubber tube that would be easy, but he was advised to give it up on the grounds that the air in the tube would be re-breathed and that it was best to make the distance as short as possible. There would be no difficulty if preferred to have it made so that it stood on a stand, yet these tubes were liable to kink.

A vote of thanks, proposed by the PRESIDENT and seconded by Mr. EASTES, was then passed.

Mr. W. G. COPESTAKE then showed his Apparatus for administering Ether, Chloroform, or Mixture, and said that the apparatus remained practically the same as that which he described in the year 1900, the only alteration being the substitution of a glass jar, to contain hot water to heat the ether when by evaporation it got too cold, for the less satisfactory method of warming it by the anæsthetist's hand. He also read notes of 69 cases he had anæsthetised with the apparatus with very satisfactory results. He claimed for the apparatus that the amount of sickness was less than when ether was given in the ordinary way, that the discomfort was less to the patient, and that the consumption of ether was less.

The PRESIDENT asked if gas were given as a preliminary to the ether and how long it took to induce anæsthesia.

Mr. COPESTAKE replied that gas was not given and that induction took from eight to ten minutes.

The PRESIDENT remarked that in London they were always in a hurry and in hospital practice could not spare ten minutes over the induction of each case.

Mr. HILLIARD said that he had seen Mr. Copestake use his apparatus that afternoon in one case and that the result was entirely satisfactory although induction was long.

CHELSEA CLINICAL SOCIETY.

Discussion on Diabetic and Non-diabetic Glycosuria.

THE annual clinical debate of this society was held at the Jenner Institute of Preventive Medicine, Chelsea Gardens, S.W., on March 10th, Dr. C. C. GIBBES, the President, being in the chair.

The debate was opened by Dr. W. HALE WHITE, whose remarks will be found in full in THE LANCET of March 14th, p. 714.

Dr. F. W. PAVY said that they had all listened with much interest to Dr. Hale White's able opening address, but different minds approached a subject from different directions, and his (Dr. Pavy's) mind had been concentrated upon the distinction between diabetic glycosuria and non-diabetic glycosuria. The first point in drawing a distinction between the diabetic and non-diabetic glycosuria was to decide what constituted diabetic glycosuria. The broad facts before them were that a diabetic subject differed from a healthy subject in the following respects: the healthy subject took carbohydrate food and all he knew after taking this food was the benefit which he had derived from it. The food did not show itself as sugar in the urine, nor did it increase the amount of sugar in the blood. The amount of sugar in the blood remained fairly constant no matter what the diet, taking an ordinary diet, might be, and the urine reflected the character of the blood. There was a certain amount of sugar naturally existing in the blood and there was a certain amount of sugar naturally existing in the urine. If the amount of sugar in the blood were increased the amount of sugar in the urine immediately increased. They were all in reality glycosurics, as were also the lower animals, but only glycosurics to quite a small extent. He did not rely upon the copper test. By means of the fermentation test the presence of sugar was susceptible of demonstration. He thought that it might be looked upon as a demonstrable fact that sugar was present in healthy urine, so that diabetes only varied as regarded degree. In the healthy subject carbohydrate food was taken and did not increase the amount of sugar in the blood, so that the sugar in the urine came from that constant sugar which was present in the blood. In an ordinary case of diabetes in proportion as carbohydrate food was given so was sugar present in the urine, the carbohydrate of the food being no longer dealt with as it was in the healthy subject. In the healthy subject it was in part converted into fat and in part synthesised into molecules which could traverse the blood without escaping with the urine. Sugar consisted of such small molecules that as it was passing through the glomeruli of the kidney it filtered away in the same manner as water, as urea, or as saline matter. Sugar that reached the blood could not do otherwise than pass off with the urine, and thus if sugar reached the blood it would be sure to reach the urine. By the process of assimilation the sugar was built up into larger-sized molecules and glycogen was nothing more than an extensive aggregation of sugar molecules with at the same time a certain amount of dehydration, or the sugar might be incorporated into proteid and in the proteid molecule it could circulate freely without any danger of escaping with the urine. There was no doubt that the sugar which was derived from the food passed by the process of assimilation into large-sized molecules which could circulate through the body without running off with the urine as the smaller-sized sugar molecule did. In diabetes there was a want of this assimilative power—the power no longer existed of putting the carbohydrate of the food into a form capable of being retained in the body; if taken with the food it reached the blood as sugar and then ran off through the glomeruli of the kidney. In what was called the "alimentary" form of diabetes that was what occurred. Sugar might also reach the urine from the breaking down of proteid which had been formed previously with the concurrence of sugar, and this was associated with what he had called the "composite" form of the disease. Thus they might have sugar in the diabetic from two sources—from the non assimilated carbohydrates of the food and from the breaking down of the proteid matter. The former condition might exist alone—the "alimentary" form of the disease; the latter, however, did not exist unassociated with the former, hence the term "composite" applied to it. As in all cases of diabetes the former condition existed, the disease might be defined as "a more or less persistent defective assimilative power over carbohydrate of food resulting in glycosuria." If they approached the consideration of diabetic and non-diabetic glycosuria from that standpoint they could see into which category a particular case should fall. It might first of all be said that apart from disease anyone might be rendered glycosuric. In ordinary circumstances a person did not get sugar in his urine from his food, but under an undue ingestion of sugar he might do so. This class of case would not fall into the category of diabetes, because it did not involve defect of assimilative power. The sugar in the urine resulted not from a defective assimilative power, but from carbohydrate having been taken to a sufficient extent to outstrip, as it were, the natural power to deal with it. In relation to diabetic glycosuria the widest variation was noticeable in assimilative power. In some instances there might be only so slight a diminution of the power that there was no sugar in the urine under an ordinary mode of feeding. There was sugar in the urine, it was true, after taking an amount of carbohydrates that could be taken by a perfectly healthy person without passing sugar, but there was not much distinction, and in differentiating cases of this kind testing with food required to be had recourse to. They were borderline cases. Sometimes there was sugar discoverable in the urine, at other times not, and the condition was most puzzling to medical practitioners. These cases depended upon the amount of carbohydrate which happened to have been previously taken. Were these cases to be considered as of diabetic or non diabetic glycosuria? Testing with food would decide the point. If such a person were given a large amount of carbohydrate and there was any weakness of assimilative power existing the evidence of that weakness would be brought out. Some time ago an individual in connexion with whose condition different opinions had been given was sent to him (Dr. Pavy) by an insurance office to be examined. The urine which he passed for examination a few hours after ordinary food for breakfast, including bread and toast, was found to be free from sugar. To know whether he really was a diabetic or not he was subjected to a test meal consisting of bread-and-butter and marmalade and this was accompanied by a glass of sherry. In a couple of hours' time the urine which the patient passed was loaded with sugar. He had no hesitation in saying that that person was the subject of a mild form of diabetes. In reference to mild glycosuria a case was quoted which had extended over 30 years, and he thought it was an interesting circumstance that the son of this patient, a boy, nine years of age, had been under Dr. S. J. Gee's care and that Dr. Gee had found sugar in his urine. Dr. Pavy considered that cases of this

kind fell into the category of diabetes, but of a very mild form. Experience showed that the condition of these patients with respect to assimilative power might vary at different times. They must not look upon the condition of a patient as stereotyped or absolutely fixed, and a condition that existed at one time might be less favourable to the assimilation of carbohydrates than at another time. A striking case of this kind fell under his observation a few years ago. The patient had been for some years a comparatively mild glycosuric—if she took much starchy food she had sugar in her urine. But with moderate restriction she could keep her urine free from sugar. She became the subject of a severe attack of pneumonia, and through the illness sugar was, apart from food to account for it, persistently present in the urine and the condition passed on into the "composite" type of diabetes. There were diacetic acid and oxybutyric acid present in the urine and it seemed at one time as if coma were threatening. The patient recovered from her pneumonia and had since reverted to her original condition of mild glycosuria without the acetone series of products. Dr. Hale White had drawn attention to a case showing the effect of starchy food giving rise to the elimination of a larger amount of sugar than could be derived from the starchy food taken. This result was in harmony with what might be observed in the progress of any ordinary case. A person became the subject of diabetes and they would assume that its existence was not known; he went on for some time and progressively found that he was growing worse. Supposing it to have been a case which had begun mildly and then gradually advanced the train of phenomena might stand as follows. At the mild beginning the patient could take a considerable amount of carbohydrate without passing sugar, but as time went on he began to pass sugar and then passed more and more. The case became gradually more aggravated—in other words, the assimilative power became more and more diminished—and the amount of carbohydrate which would only throw a little sugar into the urine at the commencement would later be found to lead to the passage of a large amount. Exactly the reverse occurred under proper treatment. A patient presented himself who was the subject of an amenable form of diabetes and he was put upon the appropriate treatment. Perhaps under the restricted diet the sugar might not at first be susceptible of complete removal from the urine, but after a lapse of time which cannot be foretold—in one case it might be two or three months, and in another it might not be for a year or two—indications would set in of a returning assimilative power. The indications were these: as long as the restricted diet was required from want of assimilative power the patient maintained his weight and his strength and felt in himself perfectly well. But with the return of assimilative power he complained of an epigastric sinking. He also felt weak and lost weight. This patient must then be given a small quantity of starchy food, beginning with three ounces of wheaten bread per diem in one ounce portions at each of the three principal meals. It would be found that the allowance of bread would not throw sugar into the urine, and the patient would feel relieved at once and his weight would increase. By-and-bye there would be a return of the former symptoms, and a drop in weight and so on, which must be met by an increase in the amount of carbohydrate given, and in this way he (Dr. Pavy) had frequently advanced it up to seven, eight, nine, and sometimes to 12 ounces of bread a day without bringing back the sugar. The starchy food which was thus taken was properly assimilated and went to the good of the system instead of running off as waste material with the urine. This was absolute proof that the condition of the system had changed; there was a return of the assimilative power over carbohydrates to a significant extent. As a rule, these cases did not regain their complete power. Some were able to take ordinary diet without passing sugar upon it, but the usual event was that there was a return of assimilative power to a certain point which varied in different cases. The inference to be drawn from what he had said was that the presence of only a slight amount of sugar had nothing to do with the classification of glycosuria into diabetic and non-diabetic groups. He would speak of non-diabetic glycosuria as independent of the question of carbohydrate assimilation; it arose from conditions unconnected with the character of the food. Obstruction of the breathing, for instance, as in asphyxia, might throw sugar into the urine and give rise to glycosuria, but this did not fall within the definition which he had just given of diabetic glycosuria. In whooping-cough there might be sugar in the urine as a result of violent paroxysms of coughing. In coma and in convulsions there might be sugar in the urine. An anæsthestic might throw a certain amount of sugar into the urine. There might be sugar in the urine in connexion with lactation and as a result of poisoning by carbon monoxide. All these conditions he classified as non-diabetic glycosuria. Cases now and then presented themselves where sugar was met with in the urine simply once and although the patient would be watched for a considerable time no sugar would be again found. This sort of case he would not put into the diabetic category. As an instance of this kind of case Dr. Pavy related that of a man who desired to insure his life and who on several separate occasions after partaking of a meat lunch with lager beer passed sugar in his urine, while all urine passed at other times was quite free from sugar. It looked as if the sugar had been put into the urine by the lager beer. In Germany lager beer glycosuria was recognised.

Dr. ROBERT SAUNDBY said that he regarded glycosuria in the following way. The normal man was capable of assimilating a certain amount of carbohydrate, but, as Dr. Pavy had said, there was no fixed quantity. Some men tended to store up a great deal of carbohydrate which they ingested in the form of fat; others burnt it off. This ingestion of carbohydrates was very much more vigorous in young people than it was in those who were getting older; what might be called the sugar-destroying or sugar-burning function of the body diminished as time went on and after middle age it certainly diminished considerably. That was why it was a fairly common thing to meet with glycosuria in elderly people. A good deal of the glycosuria of elderly people was simply alimentary—that was to say, as people got more into years their appetites did not get less, they stayed longer at table and did not take so much exercise, and were more liable to take an excessive quantity of carbohydrate food and therefore to have a surplus which passed off in the urine. Dr. Pavy had said that diabetic glycosuria was a glycosuria in which assimilation failed and that non-diabetic glycosuria was that in which assimilation was not at fault. He (Dr. Saundby) was not able to accept that definition. He suggested what seemed to him a more practical and more clinical view of the subject. He thought that where they knew the cause and could possibly remove it they should not call that diabetic glycosuria. Where they did not know the cause and where it persisted it was probably diabetes. As an example nothing had been more strongly impressed on him of late years than the truth of what was not generally admitted and had been denied by many great authorities on diabetes—namely, the influence of alcohol in producing glycosuria. In a case that had been quoted by Dr. Pavy it might have been due to the carbohydrates in the lager beer, but he had seen it produced by whisky many times. Dr. R. T. Williamson of Manchester, who had written on diabetes, was strongly convinced of the effect of alcohol in producing glycosuria. There were many other causes of temporary glycosuria besides alcohol, some of which had been touched upon by Dr. Pavy. Glycosuria in association with boils and carbuncles was often seen, also in connexion with various surgical wounds and infections. People did not react in the same way to all forms of carbohydrates, and not only did people differ very much in their capacity for assimilating carbohydrates but the same man would react differently to different forms of carbohydrates. He had found that many diabetics could take from one to one and a half ounces of lævulose without producing any increase in the amount of sugar excreted. There were other things of more practical importance. Lævulose was rather expensive and did not help very much in the diet. Milk was very important in this respect, it was a valuable and popular article of diet, and it was a great thing to know that most diabetics could assimilate definite small quantities of milk without producing any increase in the quantity of sugar excreted. His plan in treating diabetes was invariably to watch the amount of sugar excreted. He collected the whole of the urine excreted in the 24 hours and estimated the whole quantity of sugar passed. He was thus able to know the quantity of sugar excreted in a day and could easily see whether an additional half-pint of milk made any notable difference in the excretion of sugar. The utility of potatoes in the treatment of diabetes had been pointed out. Potatoes contained a very small amount of starch; whereas bread contained about 50 per cent. of starch, potatoes

only contained from 15 to 20 per cent. of starch. A man might be given a potato weighing six ounces and a large potato like that enabled a man to get through his meal without troubling about toast and bread. Supposing that instead of this potato they gave their patients one ounce of toast, that would be equivalent to 300 or 400 grains of starch. Potatoes did not contain so much starch as gluten bread. Dr. Saundby then related the histories of three cases which were, he considered, an encouragement to try the effect of potatoes as a substitute for bread. The points which he particularly wished to impress upon the meeting were, first of all, that there were many cases of glycosuria which were not properly diabetic and in which a cause could be found if looked for, one of the commonest of them met with in practice being alcohol. The second point was that people varied very much in their capacity for assimilating carbohydrates and that if they wished to treat patients successfully they must calculate the total output of sugar and not be content with mere percentages. They must also calculate the total amount of carbohydrates which they were putting into the body and see how these carbohydrates were eliminated. The sugar which was eliminated was not wholly derived from the carbohydrates of the food, sugar was also formed from the proteids. Another important practical point was to weigh the patients who were the subjects of treatment for diabetes.

Dr. J. ROSE BRADFORD said that the relation of glycosuria to diabetes had always been a point of considerable interest and a debate on diabetic and non diabetic glycosuria would suggest that it was now recognised that sugar might not only be present in small quantities in health but that it might exist in the urine as a result of other morbid processes than those described as diabetic. Glycosuria of non-diabetic origin should be carefully distinguished from the mere presence of reducing substances other than sugar in the urine. Some of these reducing substances were really normal constituents of the urine as, for instance, uric acid, creatinin, and glycuronic acid. These might give a spurious sugar reduction either owing to their being present in increased quantity or, as was not uncommonly the case, simply depending on the urine being rather more concentrated than usual and this, for instance, was notably the case with reference to uric acid. In other instances these bodies were present in increased amount owing to morbid processes, as might be the case with uric acid and creatinin and possibly glycuronic acid, all of which, it would seem, might be increased in considerable amount in a number of wasting and general diseases. Further, they might be present in largely increased amount as the result of the ingestion of certain substances, and more especially some drugs. This was notably the case with reference to glycuronic acid which might be present in greatly increased amount after the administration of camphor, chloral, or carbolic acid. Although these substances were of great practical importance owing to the not infrequent error of diagnosing glycosuria from their presence the further consideration of them did not fall within the limits of a debate on glycosuria, inasmuch as sugar was not really present as could be readily observed as a result of the fermentation and other suitable tests. In the next place, other sugars, as, for example, lactose and pentose—though especially the former—might be present in quite considerable quantities, as, for instance, in the urine of suckling women, and although that technically fell within the definition of the non-diabetic glycosuria the term was generally used as synonymous with the presence of dextrose in the urine. The first question that presented itself if the term "glycosuria" was limited to the presence of dextrose in the urine was really whether there was such a condition as non-diabetic glycosuria when they remembered that many of the conditions so described were now capable of explanation with their fuller knowledge as due to the presence of other reducing substances or other sugars in the urine. The fact that sugar was present in small quantity in health was undoubtedly suggestive of the possibility of the occurrence of non-diabetic glycosuria. The conditions, however, in which sugar was undoubtedly present in appreciable amount apart from the presence of diabetes were at any rate not numerous. Instances were occasionally seen of the transitory presence of considerable quantities of sugar in the urine supposed to be dependent on the ingestion of large quantities of carbohydrate material and ceasing not only when the carbohydrate material in the food was cut off, but also when it was only diminished to reasonable proportions. Still, such cases as those were not very far removed from the slighter forms of genuine alimentary diabetes, although possibly they might not lead to the serious developments that occurred in genuine and confirmed diabetes. In very exceptional instances sugar apparently might appear in the urine in quite appreciable quantity as a result either of severe exercise or fatigue. He had seen one such instance in the case of a young man apparently healthy who after a long and fatiguing walk excreted an appreciable amount of sugar in the urine, but where the condition was quite transitory and led to no ill-effects. Sugar might appear in the urine after the administration of morphia and possibly after prolonged anæsthesia, and in the latter instance at any rate acetone was not infrequently present. But when those various and exceptional cases were put aside there only remained injuries of the head and various intracranial diseases, especially in the vicinity of the medulla, which all would agree to as undoubted causes of non-diabetic glycosuria. Glycosuria was not uncommon even as an accompaniment of certain forms of cerebral hæmorrhage and so much was that the case that some writers had given a totally different interpretation to these cases and had looked on the hemiplegia and the vascular lesion as the result of diabetes. That view, however, was improbable, as the presence of the sugar was often directly related to the acute cerebral lesion and was transitory, and these cases were really strictly comparable to the experimental glycosuria produced by Bernard with his celebrated diabetic puncture. That, however, was a misnomer, as the condition produced by Bernard was really a glycosuria, transitory and apparently dependent on the so-called irritation produced by the medullary hæmorrhage, and was really in no way comparable to the disease spoken of as diabetes. It would seem that non-diabetic glycosuria might therefore be correlated, not only with injuries and perhaps functional disturbance of the central nervous system, but also with the excessive ingestion of carbohydrates in certain persons, and probably also as a result of the action of certain toxic substances, and it might, perhaps, be occasionally associated with the results of muscular fatigue. Glycosuria might not only be of mixed origin when it was of non-diabetic origin, but even when due to diabetes it was probable that many distinct and separate forms would be recognised in the future, if not at present. Before classifying the various forms of diabetes attention must be drawn to the very remarkable fact that the glycosuria might not only diminish but might even disappear during the course of diabetes, not only when the malady was undergoing improvement, but when fatal complications were present. Thus it was well known that glycosuria might disappear either before, or synchronously with, or after, the onset of coma and that in some cases the urine might remain free from sugar for many days before the onset of the coma. Further, the development of inflammatory complications in the course of diabetes was extraordinarily apt to be accompanied by a diminution, if not a disappearance, of the sugar and that quite apart from the development of coma. It would seem, therefore, in the metabolic processes occurring in a diabetic patient where pyrexia was present that the sugar could be oxidised. In some complications not accompanied by coma or fever, as, for instance, Bright's disease occurring during the course of diabetes, sugar might also undergo diminution or even disappear. Thus, although the presence of glycosuria was so intimately associated with diabetes, yet that disease might exist and be fatal where no sugar was present. The undoubtedly mixed group of cases described under the single term "diabetes" might be divided up in a great variety of ways, by classification based either on the clinical symptoms or on the character of the urine excreted. Thus there were some cases of diabetes in which the quantity of urine was not notably increased and therefore the quantity of sugar excreted was necessarily moderate and the presence of the sugar was almost the only abnormality in the urine. There were others where the quantity of urine was enormously increased, the amount of sugar correspondingly large, and where, in addition, other bodies—acetone, diacetic acid, oxybutyric acid, &c.—were present. That this distinction was a really vital one was shown by the different course the malady ran in the two instances and the greater beneficial influence of treatment in the first series. In the more formidable cases the quantity of nitrogen excreted was very large, associated with the greatly increased tissue waste that was

present. Another classification of diabetes might be based on the different age of the patients affected and no doubt, speaking generally, the disease was apt to run somewhat different courses in children, in adults, and in the elderly. But before their knowledge of diabetes could be considered thoroughly satisfactory it would probably be necessary to have a classification based on pathological facts rather than on the natural history of the morbid process. From a consideration of diabetes itself, and especially from the results of physiological inquiry, it would seem that some five varieties of diabetic glycosuria might perhaps be described, although in the present state of their knowledge it was not possible to separate all of them clinically. First, there was evidence in favour of the existence of glycosuria as a result of disturbed function of the absorptive and other mechanisms of the alimentary canal so that a definite alimentary variety of glycosuria, characterised mainly by the intimate relationship of the glycosuria with the carbohydrates ingested, might be recognised. Secondly, most authorities would admit that glycosuria might have a hepatic origin dependent perhaps on the liver not arresting the glycogen brought to it, and possibly in other instances dependent on the liver forming too much sugar. Thirdly, a pancreatic diabetes might be admitted to exist, both from the experimental standpoint and from that of human morbid anatomy. Fourthly, it was probable that a renal glycosuria existed, especially in the light of experimental results obtained with phloridzin, as it would seem that this glucoside caused glycosuria by an action on the renal cells. That opened up the whole question of the relationship of morbid processes in the kidney to diabetes and might place in a new light the well-known fact that in certain cases of diabetes the kidney was greatly hypertrophied. This, in his opinion, could not be associated simply with the increase of urine excreted, as renal hypertrophy was by no means an invariable accompaniment of diabetes. Further, the fact that glycosuria might disappear in cases of diabetes when an acute renal complication such as Bright's disease supervened might also receive a new explanation in the light of these phloridzin results. Fifthly, it had been suggested, and should at any rate be admitted as possible, that a diabetic glycosuria might perhaps arise as a result of a primary disintegration of the tissues. In this enumeration of the possible varieties of diabetes the nervous system had been omitted, as although the fact that the nervous system played a part in the production of the disease must be admitted on clinical grounds there was only evidence from the experimental standpoint that lesions of the nervous system produced glycosuria rather than diabetes.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Cases and Specimens.—Gastric Hyperacidity (Hyperchlorhydria).—Disinfection of the Hands.

THE seventh ordinary meeting of this society was held on March 4th, Dr. C. E. UNDERHILL (in the absence of Sir THOMAS R. FRASER) being in the chair.

Dr. D. CHALMERS WATSON showed a case of Verrucæ Planæ Juveniles. The patient, a boy, aged 13 years, had suffered from the eruption on the face for eight months. A large warty growth (mother wart) had existed on the leg for about two years and several common warts (verrucæ vulgares) had been present on the hands for a year. The treatment consisted in the administration of large doses of castor oil given twice a week for the first two weeks and thereafter once a week. At the end of three weeks the eruption on the face had disappeared and that on the hands had improved. Three weeks later the warts on the limb had undergone no change. Photographs were shown illustrating the original condition.

Dr. F. D. BOYD demonstrated: 1. A case of Localised Syphilitic Meningo-myelitis in a man who had contracted syphilis 20 years ago. There were complete anæsthesia of one half of the penis and scrotum and an anæsthetic area on the back of the right thigh and leg; the anal reflex was gone but the bladder was unaffected. 2. A case of Ophthalmoplegia. The patient suffered from locomotor ataxia and a year previously had perforating ulcers on both feet. The whole of the muscles of the left eye were paralysed; the pupils were dilated on both sides and nystagmus was present. There were slight paralysis of the tongue and soft palate and complete paralysis of the abductors of the left vocal cord as well as slight paralysis of those of the right side.

Dr. G. A. GIBSON exhibited: 1. A child with combined Obstruction and Incompetence of both Aortic and Pulmonary Orifices. There was a history of acute rheumatism and the pain complained of resembled that of angina pectoris. The single systolic murmur was conducted over a large area of the chest; one of the diastolic murmurs was musical in character and widely conducted, while the other was only heard over an area of about one and a half square inches. 2. A man, aged 22 years, with Raynaud's disease showing interesting features. The veins of the leg were like pieces of whip-cord and that their condition was due to spasm was shown by the fact that they resumed their normal character under a vapour bath.

Dr. JOHN THOMSON demonstrated a case of Spasmodic Stricture of the Œsophagus in a boy, nine years of age. There was a history of inability to swallow solid or semi-solid food during all his life; there were recurrent causeless attacks of vomiting. The vomited matters were unchanged because the food did not reach the stomach. The œsophagus could accommodate about four ounces. He rapidly regained weight when the attacks of vomiting ceased. The obstruction was situated about nine and a half inches from the teeth and had given origin to a dilatation also.

Mr. H. ALEXIS THOMSON showed:—1. A case of Dupuytren's Contraction of the Palmar Fascia. One hand was treated by Adams's method and the other by excision, and the result was in favour of the former method. 2. A case of Infantile Paralysis of the Lower Extremity treated by arthrodesis of the knee and Pirogoff's amputation at the ankle eight years ago. The patient could now use the limb fairly well for walking.

Mr. H. J. STILES exhibited:—1. A child, aged two years, showing the first stage in the treatment of Double Congenital Dislocation of the Hip. The reduction was effected ten days previously when the limb was abducted at right angles; this abduction was gradually reduced, plaster being applied each time. 2. An infant after Excision of Sub-occipital Meningocele complicated with Hydrocephalus, though no permanent improvement was expected.

Mr. R. A. LUNDIE showed a child whose Metacarpal Bone of the Ring Finger of the Right Hand was much shorter than its fellows owing to an early synostosis of the epiphysis and diaphysis.

Dr. WILLIAM RUSSELL read a paper on Gastric Hyperacidity (Hyperchlorhydria), its Nature and its Relation to Dyspepsia and Dilatation. He said that not many years since it was generally taught and universally believed that gastric hyperacidity was due to the presence of organic acids, the products of the fermentation of food in the stomach, the fermentation being caused by organisms. This widely accepted view was probably the result of observations on the contents of the stomach in pyloric obstruction. The inference that gastric contents underwent fermentation whenever unduly retained came to be applied to all, or nearly all, gastric disturbances. In recent years, with increased knowledge of digestive processes, it had become evident that there was a gastric hyperacidity due, not to the fermentation of food-stuffs in the stomach, but to a true excess in the amount of the special acid normally secreted by the organ. The term hyperchlorhydria or hyperchylia had been applied to this condition. This hyperchloric acid excess was, in Dr. Russell's experience, a much more common cause of dyspepsia and ultimately of gastric dilatation than was at present recognised. It was the primary fault in many cases which were classed as nervous, neurotic, or irritation indigestion and not infrequently it stood in the same relation to cases named gastric catarrh or gastric dilatation. Of the cases of dyspepsia which he had seen at the Royal Infirmary he would place about 25 per cent. as due to hyperchlorhydria and of cases seen privately even a higher proportion was met with. As regards elucidation of the symptoms he began by inquiring how the patient felt on getting up in the morning, then the hour of breakfast and the nature of the meal, how he felt after breakfast and if any pain, discomfort, or other symptoms were experienced during the forenoon, and the hour at which these came on, how long they lasted, and whether they continued up to the time of taking the midday meal. If symptoms continued up to this meal he ascertained the effect which the midday meal had upon them, whether they were at once aggravated, materially relieved, or entirely

removed, at least for the time. He then inquired as to the composition of the midday meal and as to the afternoon symptoms and so on until bed-time, if necessary. Exact knowledge of symptoms was of the greatest value in helping towards the determination of the part of the digestive process which was at fault. The history thus obtained was often so characteristic as to warrant a diagnosis of hyperchlorhydria without chemical examination. Such a diagnostic history might be as follows. The patient felt quite well in the morning and had no discomfort until during the forenoon; he could often state the hour at which discomfort or pain began—from one to two and a half hours after breakfast—the time varying in different patients, or even in the same patient. The pain after lasting an hour or two might pass off, to reappear an hour or longer after the midday meal. If the pain continued right up to the time of taking this meal the partaking of it removed the pain for a time, the period of relief varying from half an hour to an hour. The duration of the interval of comfort depended upon the severity of the condition and the composition of the midday meal. This sequence of events—meals, intervals of relief, recurrence of pain or discomfort—might be maintained throughout the rest of the day. If the last meal were taken near bedtime the patient might be wakened from sleep by pain or other symptoms which might prevent sleep for an hour or two. The pain or discomfort varied within wide limits—severe or acute and described as grinding, gnawing, boring, burning or giving sensations of dragging, oppression, and distension. The pain was usually referred to the epigastrium, but also might be in the back near the spine, behind either shoulder-blade, or most acute in the position of the pylorus or over the liver behind. The measure and site of the pain depended upon the duration and severity of the condition more than on any neuropathic tendency in the individual. In no other department was so much attributed to disordered or disturbed innervation as in gastric disorders and the exaggeration of this factor tended to relegate to a subsidiary place the part taken by diet and altered secretion in producing the symptoms. Symptoms were referred to as *nervous* as if the nerve condition were the primary factor when it was but the sensory index of disordered chemistry. Epigastric tenderness might be present, but as a rule only in severe cases of considerable duration. The tenderness was quite superficial and was readily relieved by friction of the skin. Other symptoms referred directly to the stomach were flatulent distension, gaseous eructations, heartburn, and acid eructations. The eructation of gas or of a small quantity of acid material gave relief, often very marked though temporary. The bowels were constipated or the evacuations were incomplete. In severe cases there was sometimes great physical and mental misery, coming on or attaining its worst when the other symptoms were at their height. The most prominent of these was a sense of physical and mental exhaustion, languor, weariness, and weight in the lower limbs and inability to apply mind or body to any work. Another symptom had been well described by Sir William Roberts as "paroxysmal pyrosis," and he regarded it as an "abortive and incomplete act of vomiting." Dr. Russell thought, however, that this latter was a pyloric phenomenon and occurred specially when there was a surplus of acid in the stomach. To explain the symptoms a precise knowledge and clear comprehension of the gastric processes of digestion were necessary. The three chemical phenomena of starch digestion, arrest of starch digestion, and proteid digestion were those upon which the unconscious comfort or the conscious discomfort of digestion primarily depended. When the chemical equilibrium and balance during this period were maintained the stomach worked without obtruding its existence on its owner's notice. The "correct relation" between the amount of proteid food and the amount of gastric secretion had to be realised. No more gastric juice ought to be poured out than could be taken up by the proteid. When this was satisfied the secretion of gastric juice ought to cease, as happened in normal conditions. If this arrest of secretion did not occur the equilibrium was upset and the resulting perturbation depended upon the measure of the excess. The element in the secretion which was the disturbing factor was the hydrochloric acid and not the special enzyme. The effect of this hyperchlorhydria upon the gastric contents was noteworthy. The proteid elements of the food were digested with exceptional rapidity and it might be thought that the other food substance, especially the finely divided starch food as bread and oatmeal porridge, would readily pass out of the stomach with the dissolved proteids, but this did not happen. A considerable portion of unaltered starch was really kept back and retained in the stomach, as Dr. Russell had frequently found. The effect of this retained and unaltered starch was to keep up the gastric secretion, while it presented no constituent with which it could combine. This undigested starch was ultimately passed on into the duodenum, but only after much local and often general discomfort, though it might also be rejected finally by vomiting. A considerable amount of the fat of milk might be retained in the same way in the stomach and Dr. Russell had noted this on several occasions when the casein of the milk had disappeared, and this even in the case of peptonised milk. In such cases the fat of the milk was diffused through the acid fluid removed from the stomach, partly floating upon it as if it were a mass of mucus. This fat also kept up the secretion and presenting no element with which the hydrochloric acid could combine the discomforts of hyperchlorhydria emerged. A third important factor in determining the severity of the symptoms was the kind of proteid food taken. The general law was that the less stimulating and the more easily digested proteids caused less discomfort than did those of a contrary character. In all three conditions there was the common factor of continued gastric secretion—continued beyond what was required and so beyond what could be utilised. This continued secretion, when examined, was found to contain a high percentage of acidity, much acid being free. At this stage the stomach contents might only measure from one to a few ounces of very acrid material, mainly fluid containing starch, some milk fat, and shreds of undigested material, according to the kind of food partaken of. The main residue in ordinary cases was starch. At this period the gastric symptoms were very severe and on withdrawing the contents the smallness of the quantity was remarkable. Why a residuum of finely divided, although undigested, starch should remain in the stomach when other material had passed the pylorus was difficult to explain. The results of clinical observation showed Dr. Russell that the unaltered starch was delayed in the stomach and that it was so even when broken up and when digested proteids had escaped. Being thus delayed it continued to stimulate the gastric secretion and there being no more proteid with which to combine the secretion accumulated and led to hyperacidity. That this hyperacidity was due to a true hypersecretion was proved by the great peptonising power of the filtered contents. When the residuum in the stomach became hyperacid its continued retention was due to the spasm of the pyloric sphincter induced by the acidity. As regards etiology it was found that the affection was usually classed under the gastric neuroses—gastrodynia, irritation, &c.—though the writers were not always clear as to the meaning of the terms, whether the pain and discomfort were merely subjective nervous phenomena or whether an assumed neurotic diathesis determined an increased secretion of hydrochloric acid. Dr. Russell's theory was that the nervous mechanism was the part of the system which was primarily deranged. He thought that this conception was erroneous and full of evil consequences. All deviations of secretion from an average standard, all increases of secretion, all modifications of chemico-vital reaction, were not explained or defined by the word "neurotic" and it was time that this word and the idea were relegated to a less prominent place when considering disturbances of gastric function. As a result of his chemical experience and the examination of gastric contents he would submit that certain persons were prone to secrete overmuch gastric juice and that possibly the constituent which was primarily at fault was the hydrochloric acid. He had been impressed with the occurence of severe hyperacidity in some gouty and rheumatic subjects and in some persons as a consequence of a diet rich in nitrogenous substances. There was little doubt that to their list of constitutional conditions the acid dyscrasia might be added. To regard the intense misery of some hyperchlorhydria as a mere neurosis was unjust to the victims. Apart from this, however, he held that the merely neurotic view was disproved by the following phenomena which he had often observed: the immediate relief obtained by removing an ounce or two of acrid stomach residuum; a like relief obtained by neutralising the acid by means of alkalies; and the measure of relief obtained by mere dilution. That the over-secretion was more a chemical and

a diathetic error than a neurosis was further supported by the experience that the mechanical removal of the hyperacid residuum in severe cases more promptly overcame the attack than any dietetic or medicinal measure, as if the withdrawal of the acid removed an overflow which otherwise was difficult to arrest and which when not removed looked as if it were absorbed and again and again re-secreted. The retention of the hyperacid residuum gave rise further to catarrh and to atonic dilatation. In some severe cases relief was ultimately obtained by vomiting and this was associated sometimes with reflux of bile from the duodenum. The treatment to be selected depended upon the severity of the condition and the history of the case and he would only refer to general principles. In mild degrees associated with constipation the correction of this might be sufficient. In these an alkali taken some time before food neutralised any acid residuum and facilitated the transformation of the starchy elements of the next meal. In other instances relief was obtained by the administration of even a small dose of an alkali or as soon as discomfort began. Dr. Russell had had no success with the administration of acids in this condition, though in some other gastric disorders they were beneficial. The diet had also to be determined by the severity of the symptoms. In some cases the prohibition of the commoner forms of starch, such as potato and untoasted bread, was sufficient; in others still greater care had to be exercised in the selection of the most readily digested carbohydrate. Another class might get over their immediate discomfort by the use for a day or two of readily digested pure proteid diet and the gradual addition to this of the most soluble carbohydrates available. In the severest cases he found the removal of the gastric residuum the speediest means of temporary cure. He held that the condition being a chemical dyscrasia and not a neurosis a permanent cure or anything approaching it could only be looked for from a dietary adapted to counteract or to prevent the chemical dyscrasia. Considerations determining the dietary were: (1) the proteids ought to be reduced to a physiological minimum and ought to be so selected and cooked as to be easy and ready of digestion; (2) the starches should be as much altered as possible; and (3) the quantity of food should not exceed the physiological requirements. Proceeding on these broad lines patients might be confidently assured of recovery and continuance in abstinence and simple living would carry with it the reward of physical and mental well-being.—Dr. GIBSON, Dr. J. O. AFFLECK, Dr. JAMES RITCHIE, Dr. G. LOVELL GULLAND, Dr. UNDERHILL, Dr. GEORGE HUNTER, Dr. BOYD, and Mr. STILES took part in the discussion which followed and Dr. RUSSELL replied.

Mr. R. B. PURVES read a paper on Disinfection of the Hands. He first considered the question of protecting the hands, especially at non-operating times, from all forms of infection. He insisted on the importance of such "abstinence" and pointed out that, short of the ideal means of wearing gloves constantly except while operating the infective potentiality of the hands could be materially diminished (1) by the use of gloves when out of doors; (2) by always washing the hands after examining cases; (3) by keeping the nails short; and (4) by wearing rubber gloves when operating on infective conditions, dressing septic wounds, and handling pathological specimens; also by using finger stalls for rectal, vaginal, and oral examinations. He advocated a nightly toilet of the hands—viz., washing, thoroughly drying, and applying an emollient. He referred to Krönig and Reinike's observation that hands, if not re-infected, become in time germ free, and described his own investigations on the hands of washerwomen. He made 60 observations at different times of the day and found that after five hours' washing cultures yielded no cocci. He emphasised the importance of a prolonged preliminary cleansing and suggested a regular system for adoption in the use of the nail-brush. He urged the necessity of keeping the nails as short as possible and considered that at least ten minutes should be devoted to preliminary cleansing. He considered a sand-glass—a time recorder—an advantage. He then referred to subsequent purification and believed that success depended rather on the thoroughness with which a method was carried out than upon the use of any particular one and that it was only in most favourable circumstances that active disinfectants could be safely dispensed with. He then touched on Ahlfeld's and Mikulicz's methods. In order to avoid the cost of the alcohol a trial for a year had been given in the Deaconess Hospital to Mikulicz's spirit soap prepared with methylated spirit. Although results improved slightly the soap had to be abandoned on account of its irritating properties. He entered into the question of gloves and advocated their more general use, particularly of thread gloves, in the ligating and suturing stage to prevent "implantation infection." He deprecated the use of a reel of catgut unless gloves were worn to prevent contact with the fingers. He pointed out the value of control cultures from the hands and operation area and showed a chart with a tabulated series of observations illustrating the facts that the right hand was less frequently sterile than the left and that the patient's skin was sterile in only about one half of cases.—Mr. STILES, Dr. W. ALLAN JAMIESON, Mr. LUNDIE, Mr. C. W. CATHCART, Mr. ALEXIS THOMSON, and Dr. J. HAIG FERGUSSON discussed the paper and Mr. PURVES replied.

EDINBURGH OBSTETRICAL SOCIETY.

Exhibition of Specimens.—Abdominal Section.—Tubal Gestation.

A MEETING of this society was held on March 11th, Dr. JAMES RITCHIE, the President, being in the chair.

Dr. ANGUS MACDONALD showed: (1) An Enlarged Thyroid from a Newly-born Infant, causing fatal tracheal compression; and (2) two Enlarged Tubes removed for Hydrosalpinx.

Dr. JESSIE MACGREGOR showed an Œdematous Fœtus: the thyroid, liver, and other organs under the microscope exhibited excessive small-cell infiltration.

Other specimens were shown by Dr. F. W. N. HAULTAIN, Dr. W. FORDYCE, Dr. J. W. BALLANTYNE, and Dr. J. H. FERGUSON.

Dr. ALBERT E. MORISON (West Hartlepool) read notes on five cases of Abdominal Section for emergencies during pregnancy. When the first patient was in labour her pelvis was found to be so much diminished in the transverse diameter as only to admit about two fingers, but the sacro-subpubic diameter was apparently normal. It was impossible to deliver a child *per vias naturales*, so a Porro-Tait operation was performed. The operation occupied less than 25 minutes and the patient did not lose more than half an ounce of blood. The child was alive and well and the mother made a good recovery. In the second case a Porro-Tait operation was performed for sarcoma of the uterus in the ninth month of the patient's third pregnancy. The condition of the uterus rendered normal labour improbable. The patient recovered from the operation but died 117 days later; the child was alive and well. In the third case a Porro-Tait operation was performed for contracted pelvis. This patient was 4 feet 6½ inches in height, with a history of rickets. The operation lasted 35 minutes; the child was alive and the mother's recovery was uneventful. In the fourth case Cæsarean section was performed for eclampsia at the sixth month of pregnancy. The patient, who was a primipara, had felt in very good health till five months previously, when she fell heavily on the ice, striking her abdomen. After that she suffered from constant headache. The urine was found to show one-half albumin. Fits occurred and after chloral, bromide of potassium, and injection of saline solution in the median basilic vein had been tried without benefit Cæsarean section was performed. The fœtus had been dead for some time. The patient's recovery was uninterrupted except for a slight fit one week after the operation. The urine at the time contained no albumin. In the fifth case rupture of the uterus occurred in the fourth month of the patient's tenth pregnancy. The uterus was removed supravaginally. The patient rallied and after a severe attack of pneumonia and a prolonged convalescence she ultimately recovered.

Professor J. A. C. KYNOCH (Dundee) communicated a paper entitled "Three Cases of Unruptured Tubal Gestation with Notes of Cases simulating this Condition." In the first case a fixed tender swelling about as thick as the forefinger was felt posteriorly to, and to the right of, the uterus. After four weeks, during which pain and hæmorrhagic discharge continued, cœliotomy was performed. The appendages on the right side were found to be adherent and the tube distended; the tube contained a sac with blood-stained fluid and numerous branching villi were seen. This patient had been in a hospital 18 months before with all the signs of ectopic gestation on the opposite side, terminating in the formation of a hæmatoma in the broad ligament which

became absorbed in six weeks. In the second case milk was present in the right breast and a distended tube was found lying to the right and behind the uterus. Cœliotomy was performed and the appendages on the right side were removed. The tube was enlarged at the isthmus; a probe could be passed through the fimbriated extremity. There was no blood in the pouch of Douglas. The tube contained laminated blood clot round a cavity with a smooth membrane containing red-tinged fluid but no trace of an embryo. In the third case the patient had menstruated regularly, but there was continuous hæmorrhagic discharge from the last period till admission to hospital. She had only suffered from pain in the right side for four days. She was examined under chloroform, when it was found that the uterus was enlarged and that there was a distended tube behind it. On palpating the swelling Professor Kynoch felt something suddenly give way and on recovery from the anæsthetic the patient looked collapsed, pale, restless, and showed all the signs of internal hæmorrhage. Cœliotomy was performed when a large amount of clot was found in the abdomen. The right tube was drawn up, when a rent admitting the point of the little finger was found on the posterior wall of the swelling with a blood clot protruding. The appendage was removed; the tube was swollen to the size of a pigeon's egg and filled with blood clot; no embryo was found. As to the treatment of such cases Professor Kynoch said that most authorities would agree with Werth in regarding an unruptured tube containing a living embryo as demanding immediate removal and permitting no conservative treatment, but with the death of the embryo debateable ground was approached. The researches of Kühne and others went to demonstrate that after the death of the embryo the cells of Langerhans' layer were capable of growing, penetrating, and causing rupture of the tubal wall. In such a condition the necessity for operative interference would arise. In conclusion Professor Kynoch discovered the diagnosis of ectopic gestation from (1) simple abortion occurring in normal pregnancy; (2) hæmorrhage into the ovary, Graafian follicle, or ovarian cyst; and (3) tubal condition with cystic ovarian disease associated with menstrual disturbance.—Remarks were made by Dr. HAULTAIN, Dr. MORISON, Dr. BALLANTYNE, Dr. FORDYCE, and Dr. J. LAMOND LACKIE.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—A clinical meeting of this society was held on March 6th, Mr. Rickard W. Lloyd, the President, being in the chair.—Mr. J. R. Lunn showed a case of Dislocation of the Left Patella in a woman, aged 38 years. Ten days before admission to the St. Marylebone Infirmary she had fallen and had injured her knee. The diagnosis of dislocation of the patella outwards was confirmed by the x rays. An attempt to reduce the dislocation under chloroform failed. The patient now found difficulty in getting up from a chair and in extending the knee, but once up she could walk fairly well.—Mr. J. Jackson Clarke considered that the internal lateral ligament had been ruptured and should be sutured.—Mr. C. R. B. Keetley said that dislocation of the patella if left unreduced might cause permanent disability, although in some unreduced cases strength and good movement might return. In this case he advised operation.—Mr. J. E. S. Frazer thought that the external lateral attachment should be divided and the internal sutured. Then careful movements with fixation should be used. This treatment failing it might be necessary to resect.—Mr. Jackson Clarke showed two cases of Spinal Caries in children. In one patient the products of disintegration were able to escape by means of a psoas abscess. In the other child there was pressure on the cord resulting in paraplegia. To relieve this costo-transversectomy had been performed with good result.—Mr. Keetley remarked that time cured nearly every case of paraplegia due to caries if the patient lived long enough. He had trephined through the transverse process some time before Vincent of Lyons had suggested a similar procedure. The patient recovered but not probably as the result of the operation. Doubtless the operation had its uses, but the main thing was fixation of the spine, which was best done by means of a plaster jacket.—Mr. L. A. Bidwell showed two cases. The first was a patient who up to last September had suffered from indigestion for two or three years and vomiting for six months. His stomach was dilated below his umbilicus. He was much emaciated. The case was regarded as one of cicatricial stenosis of the pylorus and gastro-enterostomy was advised On Sept. 5th the abdomen was opened and a new growth was found at the pylorus. It was not adherent and no enlarged glands were found in the hilum of the liver. The jejunum was attached to the posterior surface of the stomach by Halsted's method. A month later pylorectomy was suggested to the patient and this was done on Oct. 4th. The patient left the hospital one month after operation and returned to work and had increased two stones in weight. The second case was that of a patient, aged 60 years, who had had a large tumour in connexion with the left shoulder for nearly 50 years. Photographs of the growth were taken in St. Mary's Hospital in 1857. From these it appeared that at that time the general condition suggested sarcoma. Excision of the head of the humerus was advised but was refused. The tumour was now of the size of a cocoa-nut. It gave no trouble except for the mechanical interference with movement. There was no sign of pressure or of wasting of the limb. There were enlarged veins over the tumour and the skin was rather adherent. The diagnosis seemed to lie between simple exostoses and ossifying sarcoma. Probably it was a case of the latter in which ossification had proceeded to such an extent as to destroy completely the sarcomatous elements.—Mr. Paton agreed with the diagnosis of ossified sarcoma.—Mr. Arthur Evans had under his care a man with an equally large bony tumour of the upper end of the femur. A portion removed proved to be osteo-sarcoma. The patient was then treated by injection of Coley's fluid. The tumour was now smaller and harder than it was.—Mr. J. G. Pardoe showed a man, aged 37 years, who for three years had suffered with painful and frequent micturition, pyuria, and occasional hæmaturia. 18 months ago he had had a stone removed by litholapaxy. In a few months the symptoms returned. In November last year another stone was detected, crushed, and removed by Mr. Pardoe. On the following day the urine was free from blood and clearer. 48 hours after the operation there were pain in the left side of the lower abdomen and tenderness above Poupart's ligament. Three days after the operation the tenderness had extended to the umbilicus, the abdomen was motionless, and the pulse was 130, although the temperature was only 99·5° F. The abdomen was opened to the left of the middle line and an offensive accumulation of slough, urine, and pus was found. Drainage tubes were inserted. The peritoneum apparently was not opened. Recovery was tedious but uneventful. Probably there had been some pouch or sacculus in the bladder to account for the formation of stones and this weak portion of the bladder was damaged in the litholapaxy, with consequent abscess.—Dr. E. A. Saunders showed a woman, aged 55 years, suffering from myxœdema. Two years ago she began to suffer from frequent headaches, giddiness, and sensation of swelling and choking in the throat. For the last two winters her fingers had gone white in the cold weather. During the last year she had grown stouter than she was formerly and her features had swollen. As regards the possible causation of the disease it was interesting to note that she had a caseating glandular abscess in the neck incised in 1902. The fact that the thyroid gland in these cases was found to be small and fibrotic suggested an analogy with Addison's disease. Possibly the fibrotic process in the thyroid might be the expression of a chronic tuberculous inflammation leading to atrophy of the glandular elements.—Dr. A. Whitfield showed a child, aged four years, who had been treated by the x rays for Microsporon (Ringworm of the Scalp). After 13 or 14 exposures the hairs on the patches had completely fallen out. In two or three months healthy hair grew again. Dr. Whitfield thought that the x rays offered a clean and certain method of cure in circumscribed cases but should only be used with great care. For the disseminated stumps, such as were seen in old cases, he thought croton oil needling would still hold its place.

MANCHESTER MEDICAL SOCIETY.—A meeting of this society was held on March 4th, Dr. A. M Edge, the President, being in the chair.—Dr. A. Knyvett Gordon read a paper on Some Points in the Treatment of Laryngeal Diphtheria. He pointed out that whereas in America and on the continent of Europe the laryngeal obstruction of diphtheria was treated almost exclusively by intubation of the larynx, in this country tracheotomy was still largely preferred. But tracheotomy as it was described in the later text-books of surgery consisted in the performance of a dissecting operation, under chloroform, through a long incision. To this

operation intubation of the larynx was certainly preferable and it was with this that it was usually compared. The points in favour of the rapid method through a short incision, the knife being guided entirely by the touch of the left forefinger, which was kept on the lower edge of the cricoid cartilage until the tracheal dilators were inserted, were: (1) that it could be performed almost as quickly as intubation; (2) that no anæsthetic was required; (3) that the trachea was more likely to be opened in the middle line; (4) that the tracheal fascia was disturbed as little as possible; and (5) that it was an easier operation. Compared with intubation it had the advantages (1) that the relief of the obstruction was more complete; (2) that the rest of the child was less disturbed; (3) that subsequent feeding was easier, especially in the hands of an imperfectly trained nurse; (4) that it was more easy to remove false membrane, especially when this was below the tracheal wound and in large masses; and (5) that complete rest was afforded to the larynx. Stress was also laid on the fact that it was possible to remove the tube as soon as an intubation cannula in the same circumstances, tracheotomy tubes being usually left in too long. Among the indications for operation the amount of obstruction was not so important as the effect that it was having on the patient; in this connexion restlessness and the amount of epigastric recession were often misleading, the presence of cyanosis being the more important indication for operation. The after treatment was most important and consisted chiefly in insuring absolute rest to the patient; it was particularly important to avoid the use of feathers, steam tents, and over-feeding; in the majority of cases starvation for 24 hours was desirable. In these circumstances Dr. Gordon believed that tracheotomy was usually preferable to intubation, but there were a few cases in which intubation might be resorted to when it was important not to leave even as mall scar. The reason why intubation gave such good results in America and on the continent was that antitoxin was given as a rule earlier in the course of the disease than in this country.—Dr. T. A. Goodfellow read a paper on a case of Pylephlebitis following Perityphlitis, in which the occurrence of a period of delirium early in the course of the disease, followed by a series of severe and frequently repeated rigors lasting throughout the whole illness, left the diagnosis for a long time in doubt. No definite abdominal tumour was felt, but laparotomy discovered the presence of a chronically inflamed appendix with a broken down lymphatic gland containing old pus. Their removal failed to relieve the symptoms, although at a second operation the only abnormal condition found was the presence of ascites. Subsequently pus was found in the liver (that organ having become enlarged in the later stages of the disease) but its evacuation was not followed by any improvement and the patient died. The pus from the liver gave cultivations of the bacillus coli and the streptococcus citreus. The case extended over 59 days, during the last 46 of which urobilinuria with a moderate amount of jaundice was present. A short summary of the present state of knowledge regarding urobilinuria was given.

OTOLOGICAL SOCIETY OF THE UNITED KINGDOM.—A meeting of this society was held on March 2nd, Dr. Urban Pritchard being in the chair.—The discussion on papers relating to Tuberculosis of the Ear, Nose, and Naso pharynx, already mentioned in THE LANCET of Feb. 21st, p. 522, was resumed.—The President remarked that the theory put forward by Dr. W. Jobson Horne did not quite account for the chief cause of the pain—namely, pressure on nerve endings; in tuberculous cases there was not very acute inflammation, not very great pressure, and therefore absence of acute pain. In selecting cases for operation he thought that the important point was not the amount of local damage, but the general condition of the patient.—Mr. C. A. Ballance thought that tuberculosis of the temporal bone region should be treated and thought of, both pathologically and surgically, exactly as tuberculosis of any other bone was. He agreed that where the disease was extensive the operation should be done by stages. He believed that in a considerable number of cases the temporal bone was the seat of the primary disease, and he felt sure that it was the primary source of the disease which it was the surgeon's duty to attack at the earliest possible moment, and that it should be removed completely without regard to the facial nerve.—Mr. A. E. Cumberbatch considered that it should not be a question of operating upon these cases simply because they were tuberculous. The question was whether it was possible to remove the disease. If so, it should be done.—Dr. A. L. Whitehead referred to a series of records of fatal cases of ear disease. Of the last 100 cases there were only 12 which were distinctly tuberculous, and of these all but three were under two years of age. Of the three over that age all had advanced tuberculous mischief elsewhere, chiefly in the lungs.—Mr. Hugh E. Jones said that it was worthy of consideration whether bovine tuberculosis might not be responsible for the primary mastoid affections.—Mr. A. H. Cheatle remarked that many times in young children with profuse discharge from the ear, which was suspected to be tuberculous, the smell had been characteristic.—Mr. Richard Lake described two cases in which, although there was well-marked tuberculous disease of the tympanum and aural accessory centres, yet the pus which flowed down the Eustachian tube had not infected the larynx. He thought that cases of tubercle of the middle ear coming on during pulmonary tuberculosis were far commoner in this country than on the continent. He would not advise grafting after operating upon a mastoid for tuberculous disease because of the risk of shutting in tuberculous granulations.—Dr. J. Dundas Grant quoted a case showing how insidious may be the origin of tuberculous disease of the middle ear even in a robust-looking individual.—Dr. V. H. Wyatt Wingrave, Dr. Jobson Horne, and Dr. W. A. Milligan then replied to the various speakers who had taken part in the discussion. Dr. Milligan said that the discussion had shown that primary tuberculous disease of the ear was more common than had been supposed and hence the primary focus of the disease should be removed and the whole question of operation should be determined by the general condition of the patient. He advised grafting in tuberculous cases because the disease did not often invade the bone deeply, and it was quite possible to eradicate it in the majority of cases. In his experience the stapes was seldom thrown off as a sequestrum in non-tuberculous cases, the reverse being the case in tuberculous disease.—Dr. C. H. Fagge showed two specimens of Tuberculous Disease of the Middle Ear.—Mr. Cheatle showed a case of Healed Tuberculosis of the Middle Ear and seven specimens of Tuberculosis of the Temporal Bone in Infants, four of whom died from tuberculous meningitis.—Dr. James Kerr Love exhibited skiagrams of the Temporal Bone having special reference to the auditory apparatus and the surgical anatomy of the mastoid antrum.

BRITISH GYNÆCOLOGICAL SOCIETY.—A meeting of this society was held on March 12th, Dr. Heywood Smith, the President, being in the chair.—Dr. H. Macnaughton-Jones read a paper on the importance of attention to the Mouth in Operations on the Pelvic Viscera, with notes of a fatal case of Parotitis. He reviewed the bacteriology of the mouth in health and during various diseased states. He noticed especially the products formed during the presence of pyorrhœa alveolaris with carious teeth and illustrated the effects caused by such morbid conditions of the mouth by cases which had come under his notice in which gastric complications associated with foul conditions of the mouth, and great factor, parotitis, with angina Ludovici (post-operative) occurred. He reviewed the arguments for the neural and septic origin of the parotitis, asserting that there were ample grounds for believing in both causes. In such patients he thought that the prolonged administration of ether was more likely to increase and to prolong such gastric and digestive troubles than chloroform. Doubtless parotitis was often a coincidence rather than a sequence of an operation. He detailed the particulars of a case of parotitis which commenced on the fourteenth day after an operation for cystocele with uterine prolapse and hæmorrhoids. The case terminated fatally, notwithstanding free and deep incisions, on the fifteenth day of the attack. Here unquestionably the mischief began in the teeth and mouth. The patient had suffered for some time from the former and had been under dental care immediately before the operation. As a factor in causing post-operative digestive disturbances, or such graver complications as that mentioned, or sepsis, the condition of the teeth and buccal cavity before and subsequently to an operation was important. The best disinfectants were formalin, peroxide of hydrogen, sulphurous acid, and boric acid, with a basis of glyco-thymoline. Benzo-naphthol had in his experience a most salutary effect in such cases.—The President asked what had been the immediate cause of death in fatal cases of parotitis.—Mr. Stephen Paget (a visitor) said that in the 101 cases which he had collected he had

been struck by the extreme variability of the interval between the operation or injury and the subsequent parotitis, by the absence of general septicæmia or pyæmia, and by the triviality of the trauma in very many cases, so that dryness of the mouth could not be invoked as a factor. The theory of infection from the mouth, though to some extent supported by the only post-mortem examination he had made, in no way accounted for parotitis occurring more frequently after pelvic than other operations. A nervous influence of the pelvic organs upon the parotid gland seemed to be the most reasonable cause.—Dr. W. Duncan said that the few cases which he had had of parotitis following abdominal section he had always attributed to sepsis; in future he would always investigate the condition of the mouth.—Dr. Bedford Fenwick, Dr F. A. Purcell, Dr. C. H. Bennett, Dr. J. J. Macan, and Dr. Hugh Woods also spoke.—Dr. Macnaughton-Jones, in reply, said that death in cervical phlegmon might be from direct pressure, but implication of the inhibitory nerve supply would account for cardiac failure. Parotitis was but one of the complications he had attributed to infection from the mouth and he had expressly stated that it might have a neural origin.

SOUTH-WEST LONDON MEDICAL SOCIETY.—The monthly meeting of this society was held on March 11th, Surgeon-Major Mark Robinson, I.M.S. (retired), the President, being in the chair.—Mr. A. Marmaduke Sheild gave an address on Some Recent Experiences in Diseases of the Breast. The commoner diseases of the breast were reviewed and many practical hints in connexion with their diagnosis and treatment were given. As regarded mammary abscess it was important to adopt prophylactic measures during pregnancy and the nursing period. During the latter period the mouth of the infant should be regularly washed out with glycerine and borax or 1 in 4000 perchloride of mercury and glycerine. Mammary abscess was invariably due to pyogenic organisms entering the gland through the nipples. It was important to diagnose between pus and engorgement of the milk ducts. An incision should never be made unless it was certain that pus was present. If an operation was necessary an anæsthetic should always be given. A free incision should be made and any burrowing passages should be opened up and a counter opening was often desirable. Chronic mammary abscess was often tuberculous and simulated cancer. It should be always incised before removal of the breast was resorted to. Cysts were usually milk cysts (galactocele) or serous cysts; the latter were single or multiple. If there were two or three tumours in a breast it was not cancer. Cysts were painful; early cancer was not painful. Cysts varied in tension, sometimes being hard on one day and fluctuating on another. If it were certain that a cyst was a simple serous one it could be tapped and injected with carbolic acid and glycerine (30 or 40 drops) or it could be dissected out. If there were growths in the cyst or if the breast was riddled with cysts the whole of the organ should be removed. After referring to the characteristic signs of cancer Mr. Sheild mentioned a useful diagnostic test—placing the palmar surface of the hand over the surface of the breast and greatly pressing backwards. The tumour if due to a mastitis disappeared—if it did not there was something more than mastitis. Retraction of the nipple occurred in abscess of the breast, while soft cancer might not pucker the breast or the nipples. Enlarged glands were never absent though often they were not to be felt. Cases not suitable for operation included those in which the skin was extensively involved, cases of cancer in young pregnant women, and cases of atrophic cancer. Mr. Sheild showed a number of excellent drawings.

DERMATOLOGICAL SOCIETY OF LONDON.—A meeting of this society was held on March 11th, Dr. J. J. Pringle being in the chair.—Dr. F. G. Penrose showed a child, aged one year and seven months, suffering from a Bullous Eruption which had been first noticed one week after birth. The eruption affected the limbs only and showed some tendency to occur in groups. The diagnosis offered was that of pemphigus circinatus.—Mr. Willmott H. Evans showed a characteristic example of Pityriasis Rubra Pilaris in a woman, aged 56 years. The disease was of seven months' duration and affected chiefly the neck, arms, and legs. On the lower extremities the rash was diffuse and scaly, but on the neck and upper extremities it consisted of miliary follicular papules each with a central horny plug.—Dr. J. J. Pringle showed a woman who had noticed a Lump beneath the Skin on the right side of the trunk seven weeks before. Shortly after this other lumps appeared, and at the time of exhibition she was covered all over with numerous subcutaneous nodules. Quite recently, also, she had developed severe headache and ptosis of the left eye. One of the little tumours had been excised and showed the case to be one of multiple sarcoma, the primary growth not having been detected.—Dr. J. H. Sequeira showed a woman suffering from Alopecia Areata associated with Anorexia Nervosa.—Dr. J. M. H. MacLeod showed a boy who had suffered from Hyperidrosis since he was six months old. This especially affected the nose and hands. On the nose, occupying the whole of the lower two-thirds, the skin was red and covered with minute papules upon which small drops of sweat were constantly standing. The disease was a good example of that described by Jadassohn as granulosis rubra nasi.—Dr. A. Whitfield showed a child, aged six years, who exhibited an extraordinary eruption of unknown nature. On the centres of both cheeks and the chin were patches of persistent erythematous eruption with some infiltration and atrophy. The lobes of the ears were occupied by bright purple cushion-like swellings with hard cartilaginous edges. On both elbows and wrists were raised, reddish, infiltrated discs which showed a faint yellowish colour on pressure. Some ill-defined patches also existed on the legs. The buttocks showed an eruption like that on the cheeks The disease had existed for about three years and the child had enjoyed perfect health. No diagnosis was offered and no member of the society had seen a similar case before.—Dr. F. Parkes Weber showed a man with a Softish Growth on the Right Side of the Scrotum of two years' duration. The question arose as to whether it was malignant disease or a granuloma.—Dr. T. Colcott Fox showed a case of Large Papular Syphilide, almost all the papules being as large as a shilling. The infiltration was marked but quite superficial and the disease was of quite recent origin.—Mr. Arthur Shillitoe showed a case of Grouped Large Papular Syphilide scattered all over the back and limbs in a patient who had contracted syphilis nine months previously and had undergone no treatment for it.—Dr. James Galloway showed a case of Urticaria Pigmentosa.—Dr. E. Stainer showed a case of Mycosis Fungoides.

MIDLAND MEDICAL SOCIETY.—A meeting of this society was held on March 4th, the President, Dr. H. W. Langley Browne, being in the chair.—Dr. C. E. Purslow showed the placenta and membranes from a case of complete Placenta Prævia. They formed a complete sac, the only aperture in which was the hole in the centre of the placenta through which the fœtus had been delivered.—Dr. Purslow also showed Uterine Appendages with an Accessory Ovary. They had been removed from a single woman, 29 years old, for severe menorrhagia which had persisted for two years in spite of every method of treatment. The ovaries presented several small cysts and on the left side there was a well-marked accessory ovary of the size of a pea situated in the upper edge of the broad ligament about three-quarters of an inch from the ovary proper and immediately beneath the fimbriated extremity of the tube.—Mr. Christopher Martin showed a specimen consisting of the Appendages of the Uterus and the whole of the Vagina removed for extreme prolapse. The patient was a widow past the menopause and no form of pessary could be retained. The operation was severe and was only performed as a last resource. The patient made a slow but complete recovery.—Mr. William Billington showed specimens from a case of Neuro-fibromatosis (von Recklinghausen's disease). The patient was a man, 38 years of age, who died shortly after the removal of a large swelling on his lingual nerve which almost filled up his mouth and seriously interfered with breathing and swallowing. At the age of three the patient fell and cut his right cheek. Two years later a lump appeared. This gradually increased in size, and in spite of two successful operations the right cheek remained very much larger than the left. Other lumps appeared in other parts of the body, some of which were subcutaneous. The patient remained in good health and suffered very little inconvenience until the year before his death. The specimens which were shown consisted of the lumbar plexus and its branches with the upper part of the sacral plexus. The nerve showed marked diffused thickening at intervals, giving rise to a fusiform swelling. A tumour was found in the lower half of the spinal cord rather larger than an almond. This gave rise to no symptoms during life and

was the only lesion present in the central portion of the nervous system.—Mr. George Heaton read a paper on the Palliative and Operative Treatment of Enlarged Prostate and showed one of his cases.

LARYNGOLOGICAL SOCIETY OF LONDON.—A meeting of this society was held on March 6th, Dr. P. McBride, the President, being in the chair.—Dr. A. Bronner showed a microscopic specimen of Columnar-celled Carcinoma of the Naso-pharynx from a patient who had been under observation for four and a half years.—Sir Felix Semon remarked that it was a well-known experience that malignant disease in the nose and naso-pharynx usually pursued a slow course. —Dr. W. H. Kelson showed (1) a man with Dislocation of Bones of the Nose due to Polypi, and (2) Bleeding Polypus in a girl, with microscopic section.—Dr. H. Tilley showed a case illustrating the Result of Operative Treatment of Adhesion of the Soft Palate to the Posterior Pharyngeal Wall in Tertiary Syphilis.—Mr. F. J. Steward showed a case of Clonic Contraction of the palate, adductors of the vocal cords, and certain other muscles. The patient had a staggering and reeling gait and slightly increased knee and plantar reflexes, but no other signs indicative of lesion of the nervous system.—Sir Felix Semon considered that the gait was not typically tabetic and suggested the probability of cerebellar tumour.—Mr. E. Cresswell Baber showed (1) a Tumour of the Vestibule from a woman, aged 26 years, with microscopic section, and (2) a Tongue Depressor for exposing the tonsil. —Mr. E. D. Vinrace showed a case of Lupus (?) of the Nose and Face in a woman about 60 years of age. The case was discussed by Dr. H. W. Fitzgerald Powell, Dr. W. Hill, Dr. J. Dundas Grant, and Mr. F. H. Westmacott.—The President showed a case of Anosmia in a man aged 39 years, who had lost the sense of smell in the beginning of 1901. The principal feature of interest in the case was the intermittent character of the anosmia. The case was discussed by Mr. Baber, Mr. F. de Havilland Hall, Dr. Grant, Dr. J. Donelan, Dr. L. H. Pegler, and Dr. P. Watson Williams.—Dr. H. L. Lack showed various Microscopic Specimens and a man (shown at the January meeting) who was suffering from Spastic Aphonia affecting the speaking but not the singing voice, and who had now completely recovered his power of speech.—Dr. Donelan showed a case of Perforation of the Nasal Septum (? trauma or syphilis).

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on March 4th, Dr. C. H. Cattle being in the chair.—Mr. R. G. Hogarth showed the following cases: 1. A boy on whom Œsophagotomy had been performed for removal of a toothed clock wheel one inch in diameter from the thoracic portion of the œsophagus where it had been lodged for six days; the œsophagus was opened just above the left sterno-clavicular joint. 2. A boy after an extensive operation for Excision of Tuberculous Glands in the Right Side of the Neck; the glands were very numerous but only one or two had broken down centrally. 3. Two boys after Excision of the Hip-joint. 4. A child after Erasion of the Knee-joint for Tuberculous Disease. 5. A case of Congenital Dislocation of the Hip (with skiagram) in which the Lorenz operation had been tried unsuccessfully. 6. A boy after Tarsectomy for Talipes Equino-varus.—The cases were discussed by Dr. Cattle, Dr. J. S. Bolton, and Mr. W. M. Willis.—Mr. Hogarth read a paper on the Diagnosis of Affections of the Hip-joint. He urged that examination per rectum of the condition of the pelvic bones should be more frequently used and advocated early operation in those cases in which tuberculous disease occurred in the acetabulum or in the neck of the femur.

TORQUAY MEDICAL SOCIETY.—A meeting of this society was held on Feb. 19th, Dr. F. D. Crowdy, the President, being in the chair.—Dr. T. Horton related the case of a young man upon whom he had successfully operated by the suprapubic route for the removal of the broken end of a gum elastic catheter from the bladder. The case was somewhat mysterious as there was no apparent reason why he should have used a catheter. The patient had also the scar of a previous similar operation and another scar in the loin where his kidney had been cut down upon.—Mr. H. T. Newling read a paper on Accidental Hæmorrhage in which after reviewing various former methods of treating this condition and their unsatisfactory results, he commended the method advocated by Dr. R. P. Ranken Lyle, but first brought under notice by Dr. W. J. Smyly, late master of the Rotunda Hospital, Dublin, which consisted in tightly plugging the vagina with sterilised cotton wool tampons after the bladder and rectum had been emptied, the object being to compress the uterine arteries against the pelvic walls, and then applying an abdominal binder and a perineal band. Mr. Newling read notes of two cases in which this treatment was adopted with perfect success.—A discussion followed.

EDINBURGH ROYAL MEDICAL SOCIETY.—A meeting of this society was held on March 13th, Dr. A. B. Ross being in the chair.—Dr. W. H. Prentice read a paper on Some Aspects of Gynæcology, laying stress on the importance of gynæcological training to the general practitioner on account of diagnosis and treatment. The paper was illustrated by reference to cases which had come under the notice of Dr. Prentice and which had been wrongly diagnosed by general practitioners. He gave a *résumé* of the treatment of cases most likely to be met with in general practice and this he considered chiefly from the point of view of treatment medically.—Dr. A. H. Firth read notes on two medical cases. The first was the case of a miner with symptoms of Cerebral Tumour. At the post-mortem examination a glio-sarcoma affecting the frontal lobes was found. Dr. Firth exhibited sections of the brain and also a microscopic section through the frontal regions. The second was a case of Extensive Cancer of the Liver in a middle-aged woman. The post-mortem examination showed that the liver was greatly enlarged, weighing 14 pounds. It was the seat of primary carcinoma. Sections of the liver were exhibited.

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.—A meeting of this society was held on March 9th, Dr. A. E. Maylard, the President, being in the chair.—Dr. A. Maitland Ramsay showed a case of Detachment of the Retina which had been treated by subconjunctival injection of saline solution; the fields of vision of eight other cases treated in the same way were also shown; in six there was marked improvement but in the two other cases there was none. He also showed a case of Ophthalmoplegia and one of Tuberculous Iritis.—Dr. J. Crawford Renton read notes of (1) the case of a girl, aged 12 years, operated on for a Ruptured Appendix and ten days afterwards for obstruction of the bowel; and (2) a case in which Recurrent Attacks of Obstruction of the Bowel were caused by a gall-stone impacted in a contracting ulcer of the ascending colon.—Dr. J. Wyllie Nicol showed a patient who was the subject of Generalised Favus.—The President showed specimens of Bowel from two successful cases of Enterectomy.—Dr. J. M. Cowan and Dr. A. R. Ferguson showed several specimens illustrating Congenital Cardiac Anomalies.

FOLKESTONE MEDICAL SOCIETY.—A meeting of this society was held on March 6th, Dr. T. Eastes, the President, being in the chair.—Mr. M. G. Yunge-Bateman read a paper on the Influence of Isolation of Infectious Diseases as applied to Folkestone. Charts were exhibited representing figures covering a period of ten years, divided into two equal parts—the first that of inefficient isolation and the second that of efficient isolation due to the more perfect control of infectious cases and to better accommodation and administration. He showed that the percentage of isolated cases to the notified cases had increased 20 per cent. and that the case-mortality had been reduced about 50 per cent.—The President expressed the opinion that it was hopeless to endeavour to isolate a patient in a private house for any length of time.—Dr. P. G. Lewis, Mr. W. F. Chambers, Dr. A. E. Larking, Mr. W. P. Barrett, Mr. J. W. T. Gilbert, and Dr. W. L. Chubb took part in the discussion.

GLASGOW NORTHERN MEDICAL SOCIETY.—A meeting of this society was held on March 3rd, the President, Dr. J. Steel Muir, being in the chair.—A discussion was opened upon the following subject, "Can anything special be done by the medical practitioner to diminish the frequency of, and to lessen the mortality from, cancer of the uterus?" Dr. J. K. Kelly opened the discussion by reading a paper dealing with the question and Dr. John Ritchie, Mr. C. F. Spinks, Dr. James Todd, the President, and Mr. J. Rutherford spoke, while Dr. Kelly replied.

MEDICAL MAGISTRATE.—Mr. Edward England Phillips, M.R.C.S. Eng., L.R.C.P. Edin., has been placed on the commission of the peace for the city of Bath. Mr. Phillips was mayor of Bath in 1902 and is already a justice of the peace for Essex and Somersetshire, having been added to the commission in 1886.

Reviews and Notices of Books.

Experimentelle Untersuchungen über die entzündliche Neubildung von Bindegewebe. (Experimental Investigations on the Inflammatory Growth of Connective Tissue.) Von Dr. Med. ALEXANDER MAXIMOW, St. Petersburg. Jena: Gustav Fischer. 1902. Pp. 262 and 13 plates. Price 20 marks.

UNDER the above title Dr. Alexander Maximow has published a very lengthy monograph in book form describing in detail the results of a long series of experiments undertaken by him to discover the exact manner in which connective tissue is formed and regenerated. This very important piece of research has been carried out in Professor E. Ziegler's pathological laboratory in Freiburg, a laboratory from which at one time and another a great deal of work on this subject has emanated. The controversial and vexed question of connective tissue formation has a literature of its own which is little less than prodigious and within recent years there is hardly a pathologist of repute who has not contributed some item more or less important towards the elucidation of the vital processes concerned in what is generally called inflammatory growth. Indeed, Professor Ziegler himself largely owes his great reputation as a pathologist to his classical "glass chamber" investigations on this very subject, and it has been Dr. Maximow's task to substantiate the greater part of his investigations as it has been to reconcile many of the conflicting theories which have been adduced on the general processes of inflammation. Inflammatory new growth has been explained as due to the coalescence and growth of leucocytes derived from the blood stream, to the growth of migratory cells belonging to the lymphatic system, or to specially modified cells of the connective tissue and to the outgrowth of processes of pre-existing connective tissue cells. According to Dr. Maximow it is to the fibroblasts which are the ordinarily connective tissue cells that we must look for the formation of permanent new tissue. Certain other cells also take part in the preliminary stages of this growth. Their function, however, is only temporary and evanescent; they act, as it were, as pioneers or carriers to the fibroblasts, which are the permanent bricklayers and masons. These pioneer cells belong chiefly to two classes—firstly, ordinary leucocytes, which are of the multinuclear granular variety and which migrate from the blood-vessels to the seat of inflammation; and secondly, certain uninuclear round cells, sometimes called lymphocytes, and in the author's nomenclature described as polyblasts. These latter cells or polyblasts occasionally originate from pre-existing migratory cells of the connective tissue type. They also appear to develop from clasmatocytes and from the adventitious cells of the blood-vessels. However, the vast majority of polyblasts are ordinary lymphocytes which have migrated from the blood stream. Whether, however, they make their appearance at the seat of inflammation directly from the blood stream or wander thither from the intercellular spaces of the connective tissue, it is suggested that these polyblasts are probably of one nature only, although under varying conditions of environment their morphological character may have been distinctly differentiated. The ordinary leucocytes and polyblasts, although paving the way for the permanent work of the fibroblasts, are incapable of independent formation of enduring tissue. Leucocytes for the most part degenerate and disintegrate, possibly providing food material for the workers of the permanent structure. The histological methods whereby the author has been enabled to carry out his inquiries are very thorough, complete, and ingenious, and the microscopic appearances of the preparations are very beautifully illustrated at the end of the work in a series of plates.

This monograph is not only a very valuable contribution to the histology of connective tissue formation and regeneration, but it throws very important light on the general processes of inflammation and although possibly it does not represent the last words which have to be said on these biological processes nevertheless it must be regarded as the most trustworthy account which has yet been published.

Die Antikörper: Resultate früherer Forschungen und Neue Versuche. (The Anti-bodies: Results of Previous Researches and New Experiments.) By Dr. EMIL FREIHERR of Dungern. With two Drawings and Four Curves. Jena: Gustav Fischer. 1902. Pp. 114. Price 2*s.* 6*d.*

THE first part of this treatise gives a concise and interesting survey of the researches which have led to the development of the present theory of immunity. After a full consideration of the antitoxins and of Ehrlich's theories in regard to receptors, amboceptors, and complements the author proceeds to deal with the other anti-bodies, the agglutinins, lysins, cytotoxins, and precipitins, and discusses their origin, nature, formation, and action so far as they have been elucidated by present research. In the second part Dr. Freiherr describes his own researches. These were instituted to inquire further into the nature and formation of the anti-bodies and for this purpose he chose the precipitins. In his experiments he employed the blood plasma of molluscs and injected it into rabbits. An account of these experiments is not called for here but some of the conclusions which he draws from his researches may be mentioned. He finds that precipitins are of an albuminous nature and are specific for the particular sera by which they are called into being; that the precipitable substance of an injected foreign serum enters into some combination with the cells of the organism before katabolic destruction; that such a combination of an injected foreign serum with the cells of the organism is hindered and delayed by a previous injection of another different serum; and that consequently while different sera when injected call forth specific precipitins the same cells of the organism are employed in the reaction. On the other hand, it is shown that a previous injection of one serum predisposes the organism to take up the precipitable substance from a second injection of the same serum rather than that of a different serum. The formation of precipitin takes a definite time to develop after injection and its course may be represented by a curve. Finally, Dr. Freiherr describes an interesting experiment in which he was able to demonstrate a local formation of precipitin by injection of the serum into the anterior chamber of a rabbit's eye.

Hygiene und Diätetik der Stoffwechselkrankheiten. (Hygiene and Dietetics of the Diseases of Metabolism.) By F. SCHILLING. Leipsic: H. Hartung and Son. 1903. Pp. 345. Price 5.50 marks.

THE number of diseases which are recognised as due to faulty metabolism is now so considerable that it is as remarkable that Dr. Schilling has been able to condense an intelligible account of the chief varieties within the limits of 345 pages as that a volume so replete with scientific detail has not assumed even larger dimensions. It is, however, logically certain that if the diseases now acknowledged to belong to this classification are indeed due to perverted metabolism the list must be greatly extended in the near future. For inasmuch as all physiological processes represent the activities of protoplasm—in other words, "metabolism"—and inasmuch as pathological processes are

but narrowly removed from those which are physiological, it follows that all morbid conditions, whether giving rise to structural or to functional change, must in a sense be regarded as of metabolic origin. Thus, strictly speaking, such widely separated pathological conditions as hysteria and tumour formation have the same right to be regarded as diseases of metabolism as have diabetes and gout. The author, however, wisely limits his survey of the diseases belonging to this category to those concerning the nature of which there can be no possible doubt—namely, to that closely allied trio, gout, diabetes, and obesity (*Fettsucht*) and to the auto-intoxications, scurvy, Basedow's disease, myxœdema, and rickets.

The simplest introduction to the study of disturbed metabolism is to survey the same processes in what may be termed normal or physiological conditions, and conformably with this view the opening chapters of the volume are devoted to the elucidation of the chemical and physical processes of protoplasm which result in digestion, assimilation, and dissimilation. Readers are next informed as to the cause and effects of pathological disturbance of these normal processes and the treatment by hygienic and dietetic measures is fully discussed. Finally, the various groups of symptoms described as independent diseases are explained at length and the appropriate treatment is suggested. The manner in which the author handles his subject is altogether admirable and if the reader is disappointed at finding that the biological secret of gout, diabetes, and all the other diseases due to faults of metabolism is still to be discovered his mind at least will be disabused of many of the fallacious beliefs which have heretofore stood in the way of a rational understanding of the vital processes of health and disease. While we have nothing but approval for the want of prejudice and for the extremely impartial manner in which Dr. Schilling handles so controversial a subject as that of tissue metabolism, we cannot help thinking that he has hardly credited the nervous system with the respect to which it is entitled, both as an instrument for the maintenance of normal metabolism and as a factor in the production of those disturbances of equilibrium which give rise to symptoms of disease. While admitting that the nervous system is itself dependent for its activity on the chemical changes which occur in its molecular constitution, it cannot be doubted that it exercises the most potent influence, not only on special metabolism but also on what may be called the vegetative metabolism of all tissues throughout the body.

Although it is hardly probable that this excellent little work will be translated into the English language, nevertheless the original German is written in such an easy and simple manner that anyone who has a slight acquaintance with the German language will find no difficulty in understanding the greater part of the contents and all those who are interested in the subject of metabolism are strongly advised to read it.

Anæsthetics: a Practical Handbook. By J. BLUMFELD, M.D. Cantab. London: Baillière, Tindall, and Cox. 1902. Pp. 109. Illustrated. Price 2*s.* 6*d.* net.

WE gather from Dr. Blumfeld's preface that the object he has placed before him in writing this handbook is to supply students with such general information about anæsthetics as may suffice for the needs of examinations and ordinary practice. Within the limits that he thus prescribes for himself the author has been quite successful. No doubt the exigencies of space have obliged him to confine his attention to three anæsthetics—nitrous oxide, chloroform, and ether—but students might have been told that other useful anæsthetics are available and, further, that local anæsthesia offers a wide field of utility if employed with knowledge and judgment. At times we are referred to the writings of other anæsthetists for descriptions of apparatus which had they been included in his volume would have increased its utility. The average student, however, does not refer to larger books and such information as an author does not think it necessary to give the student is content to do without.

Nitrous oxide is dealt with after a brief account of the action of anæsthetics. The use of this gas alone, with air or oxygen, is clearly given. The mixture of nitrous oxide and oxygen is rightly described as an unsatisfactory combination for prolonged operations. It is common to prolong anæsthesia in dental practice by the use of a nasal tube or nose cap, and Dr. Blumfeld has taken pains to describe the methods and has done so well, and only very careful writing can do more than indicate the methods of using these valuable contrivances. As no mention is made of Coxon's mouth injector tube for "continuous gas" we suppose its use does not appeal to Dr. Blumfeld. The mode of employment of ether alone or in sequence to nitrous oxide is carefully given and many valuable suggestions are made in this connexion. Clover's method of giving gas with ether by his larger apparatus does not find a place in this manual, but Ormsby's inhaler and the use of Rendle's mask are described. The reference on p. 44 to Mr. W. Tyrrell's two-bottle method is somewhat misleading. It is there stated that "ether is sometimes given from the bottle of a Junker's inhaler when chloroform is being also used." The whole object of the method as we understand it is to give chloroform and, if occasion arise, to be able to blend some ether vapour with it. The ether is an adjunct and not the predominant partner.

An excellent chapter on chloroform follows, a chapter which appears to us to be of especial value. The illustration of Junker's apparatus might have been replaced by one of the more modern and improved patterns which offer safeguards to many of the undoubted dangers incidental to Dr. Junker's original apparatus. The description given, however, makes up for the error in illustration, as the original apparatus is not dealt with, but the more modern type is taken, in which twin tubes are used and the method of using the inhaler is very well and clearly set forth. Succeeding chapters introduce the subjects Anæsthetics in Succession and in Mixtures, Choice of Anæsthetic, Dangers and Troubles incidental to Anæsthesia, and Position of the Patient and his Preparation and the After-effects. Dr. Blumfeld has compressed into these few chapters much that is valuable and his directions are sensible, succinctly put, and accurate. We can recommend the book as an excellent primer for the use of beginners, while we are sure that more advanced students may benefit by reading with care the closing chapters. Dr. Blumfeld has set himself to accomplish a certain task and we consider that he has performed that task well and in a useful manner. His descriptions are excellent and he possesses a clear style.

LIBRARY TABLE.

A Text-book of Physics. By R. A. LEHFELDT, D.Sc. London: Edward Arnold. 1902. Pp. 304. Price 6*s.*—According to the author in his preface this book has been written from the point of view of the student of medicine in the hope of attracting attention to the intimate dependence of physiology on physical principles and at the same time of supplying a practical handbook of moderate dimensions containing so much of physics as the student amongst his many other claims can find time for. We are aware of the tendency to overburden the medical student with the facts of the collateral sciences, but surely we might expect that a text-book of physics written from the point of view of the student of medicine would have afforded an opportunity of dealing with those physical phenomena with

which sooner or later he is brought into contact in medical practice. Thus a reference to Raoult's law we should have thought would have afforded the opportunity of mentioning cryoscopy as applied to the examination of urine. Again, we might anticipate a reference to the currents employed in electro-therapeutics and once more in the section on light surely there was the opportunity of discussing treatment by actinic rays in however small a paragraph. The book is based on the author's lectures for the intermediate examinations in science at the University of London and for that examination we are quite sure that it will be helpful, but we fail to see in what way it is adapted for the specific needs of the medical student.

Organic Chemistry. By W. H. PERKIN, jun., Ph.D., F.R.S., and F. STANLEY KIPPING, Ph.D., D.Sc., F.R.S. New and revised edition. London and Edinburgh: W. and R. Chambers, Limited. 1902. Pp. 635. Price 7*s.* 6*d.* —When this book was issued in parts some years ago we ventured to hope that the authors might see their way to incorporate the sections into one volume, so favourably were we impressed with the lucid way in which the facts were presented. Not only has this been done, but recently a chapter dealing with the more important constituents of plants and animals has been added in the form of an appendix with a separate index. We have already expressed the opinion that the book admirably meets the requirements of the medical student and since this important chapter has been added our opinion in this regard has been considerably strengthened. With many students organic chemistry is undoubtedly a difficult subject and it is not easy to limit the extent of their studies exactly to their particular requirements. The tendency of many teachers is to force the student to face a great number of facts which the exploration of the organic field is constantly bringing to light. The present volume keeps within certain bounds, giving a course of organic chemistry sufficient for the medical student's purpose. There is time enough to study complex organic problems when he has mastered the primary points and classification and he will find that the foundations of the science are here dealt with in a clear, comprehensive way without sacrificing details which may be of medical import.

Points of Practical Interest in Gynæcology. By H. MACNAUGHTON-JONES, M.D., M.Ch.Q.U.I. With 24 plates. Third edition. London: Baillière, Tindall, and Cox. 1902. Pp. 188. Price 4*s.* 6*d.* net.—The fact that second and third editions of this book have been called for within the year shows that it has met with a ready appreciation. The author has certainly, in the words of Dr. Johnson whom he quotes in the preface to the first edition, "stored his mind with acquired knowledge," and that he is successful in retailing this knowledge in an acceptable manner for the benefit of others is shown by the success of this little work. The most interesting section is that dealing with affections of the female genitalia as causal factors of the neuroses of insanity and their special bearing on the operative treatment of the insane. In other chapters are discussed conservatism in gynæcology and its influence on operative technique, the indications for the operation of hysterectomy, and retroversion of the uterus.

The Pharmacological Action and Therapeutical Uses of the Nitrites and Allied Compounds. By the late DANIEL JOHN LEECH, M.D., D.Sc., F.R.C.P. Lond. Edited by R. B. WILDE, M.D. Lond., M.Sc. Vict., M.R.C.P. Lond. Manchester: Sherratt and Hughes. 1902. Pp. 187. Price 10*s.* 6*d.*—The masterly disquisition on the pharmacological action and therapeutic uses of the nitrites and allied compounds which formed the subject of the Croonian Lectures in 1893 by the late Professor Leech is the principal feature of this book, the publication of which the profession will keenly appreciate since it is the most valuable contribution on the action of that interesting class of compounds containing the NO_2 group. The Croonian Lectures were delivered in 1893, but the present volume represents the views held by Professor Leech in 1900. The first chapter contains the exceedingly interesting and classical discourse on "The Relation of Pharmacology to Therapeutics" which formed the introductory lecture delivered at the Owens College on May 1st, 1884. This is followed by a chapter on spiritus ætheris nitrosi and then one on nitrite of ethyl and other nitrites. At the end of the book is a somewhat lengthy list of references to the bibliography on the subject which is followed by 28 plates showing muscle curves and contractions and sphygmographic tracings. The late Professor Leech's thoroughness of method was well known and to him we owe a contribution of the utmost pharmacological importance, shedding a strong light on the relation between the constitution of nitro-compounds and their therapeutic action.

A Junior Chemistry. By E. A. TYLOR, B.A. London: Methuen and Co. 1902. Pp. 228. Price 2*s.* 6*d.*—Though we deplore the plethora of elementary manuals of chemistry we can find no objection to this little volume, for it sets forth in a plain and intelligent way the rudiments of chemical science. On the whole we like the author's plan which is to insert experimental directions in the subject matter dealing with theoretical considerations. We should have thought that some small reference to helion would have been made considering its significance in regard to the chemistry of the sun and the earth. The author's method of instruction is obviously correct, for he has omitted summaries because "they help the lazy boy to avoid thinking for himself." "Thinking for himself" is the secret of attaining sound knowledge

The Modern Treatment of Sewage. By H. C. H. SHENTON. London: S. Edgecumbe-Rogers. 1902. Pp. 117. Price 2*s.* 6*d.*—This is a reprint of a number of useful little notes on the engineering side of sewage problems which appeared in the *Local Government Journal.* It is evidently the work of a practical man and the chapters are written clearly and will be read with advantage by those desirous of a practical acquaintance with the subject. The account of the methods of disposal is decidedly good and instructive.

Medical Guide to the Hot Mineral Baths at Bath. Published by the Baths Committee of the Bath Corporation. Pp. 111.—This is an official guide issued by the Bath Corporation and contains useful information for the practitioner bearing upon the methods of treatment at this celebrated health resort. Probably the equipment at Bath comprises all known methods employed in balneo-therapeutic practice. The book contains a number of extracts from the report of the Special Commission of THE LANCET (*vide* THE LANCET, Oct. 14th, 1899, p. 1055), which "supplied a wealth of valuable information of an unimpeachable character which is here unsparingly drawn upon."

A Manual for Assistants' Examination, Apothecaries' Hall. By MABEL F. STANLEY, Qualified Dispenser, Apothecaries' Hall. London: Henry Renshaw. 1902. Pp. 281.—The fact that this book is intended for examination purposes is not disguised and no doubt it will form a useful notebook for those studying for the assistants' examination. We can take no exception to the facts presented under chemistry and materia medica, but, of course, both subjects are treated in a scrappy way. When the author expresses the view that this little manual should prove a useful adjunct to the ordinary text-books on materia medica, chemistry, and pharmacy criticism is disarmed. We hope that the reader will bear in mind the word "adjunct."

Sewage Works Analyses. By GILBERT J. FOWLER, M.Sc. Vict., F.I.C. London: P. S. King and Son. Pp. 135. Price 6*s.*—In view of the great strides that are now being made in regard to the purification of sewage by bacterial agencies it is important that a systematic scheme for the

examination of sewage and sewage effluents should be adopted by which the character of both may be determined. This little book, therefore, comes at an opportune time and moreover it is written by one whose experience of sewage processes cannot be doubted. Mr. Fowler is the superintendent and chemist of the Manchester corporation sewage works and the methods of analysis described are those which are adopted there. Little more need be said. The methods have been approved by experience and supply all that is required to form an opinion as to the character of the sewage presented for treatment and as to the extent of purification effected by a given process. The book is one to be consulted by all those having anything to do with the control of methods of purification. We cannot help thinking that 6s. is rather a high price for this small volume.

The Guide to South Africa, 1902–1903 Edition. Edited annually by G. SAMLER BROWN and G. GORDON BROWN for the Union Castle Mail Steamship Company, Limited. London: Sampson Low, Marston, and Co., Limited. Cape Town: J. C. Juta and Co. Pp. 274 and maps. Price 2s. 6d.—This guide is said to be for the use of tourists, sportsmen, invalids, and settlers. It gives information on how to get to South Africa, with various details as to living in the country, together with articles on farming, mining, health and health resorts, manufactures, and sport. In the article on sport we are glad to see a protest against the hideous and wanton destruction which has caused the entire disappearance of some species of animals and rendered others extremely rare. On p. 260 there is surely a slip. The writer says, "Three species of ibis are found including the red sacred ibis (*Ibis Aethiopica*)." Now the sacred ibis is not red but white with a black head and black tail coverts, while the red ibis (*Eudocimus ruber*) is, we believe, only found in South America and occasionally in the Southern States, unless, indeed, the writer means by "red" the glossy ibis (*Plegadis falcinellus*) which at some seasons of the year is of a ruddy chestnut colour, but in any case the sacred ibis is not red. The information given in the book is very full and should be of use to the various classes of readers for whom it is intended.

Briefhand or Orthographic Shorthand. Published by the author, F. W. WHITE, 26, Browning-road, Manor-park, E. Price 6d.—Various attempts have been made to construct a system of shorthand capable of being written more rapidly than our cumbrous cursive script but which shall be at the same time almost as legible, though, judging from manuscripts which reach us, legibility is not always a characteristic of longhand writing. "Briefhand" is yet another attempt in this direction and is intended, according to the author's preface, "chiefly for the use of the general public who have not the time, the inclination, nor the necessity to study a complicated system of shorthand." It is impossible to judge of the utility of any system of shorthand until it has been used in actual practice, but, from a glance through the pages of this little pamphlet, we are inclined to think that "Briefhand" may prove useful for the class of persons indicated by the author. The alphabet, which can be memorised in ten minutes or less (the characters being formed from the diacritical portions of the Roman capital letters), has been ingeniously constructed, while the rules for writing are extremely simple. Provision is made for sounds peculiar to the French, German, and Spanish languages. The inventor believes that the system may also prove useful to writers of phonetic shorthand as an aid in securing the correct spelling of peculiar and unfamiliar words and names which may be difficult to represent by a system of shorthand in which words are written as sounded and not as spelt. In a covering letter the author assures us that he himself, a writer of phonography, does not find that the two systems clash in actual practice.

MEDICINE AND THE LAW.

Madame Spitzner's Great Museum.

THE case of Désirée Spitzner and Léon Dekaesmaeker came before the Recorder at the March sessions of the Central Criminal Court. These persons, foreigners, were charged with exhibiting waxwork figures alleged to be obscene and with publishing a catalogue of the exhibition. A description of the figures appeared in THE LANCET of Jan. 24th, p. 275. At the Old Bailey counsel for the prosecution representing the National Vigilance Association applied that the case should stand over until the next sessions upon terms that meanwhile the whole of the exhibits should be removed abroad and that there should be no opposition to an order being made at the Marlborough-street police-court for the destruction of the catalogues in the hands of the police. This application the Recorder granted, the persons charged being admitted to bail. Mr. Kennedy, the magistrate who was subsequently asked to make the order for destroying the catalogues, seems to have expressed regret at the leniency of the course adopted. Many, however, will consider that it was on the whole satisfactory, for it causes the withdrawal of the exhibition from England without entailing the discussion which usually follows trials of this kind upon the relative indecency of various works, scientific, literary, and artistic, and upon the views held upon such subjects in various countries. The law in England in such matters was laid down by Chief Justice Cockburn in 1868 in the case of the pamphlet entitled "The Confessional Unmasked." He had referred during the course of the argument to the position occupied by medical works. In the course of his judgment he said: "The test of obscenity is this, whether the tendency of the matter charged as obscenity is to deprave and corrupt those whose minds are open to such immoral influences, and into whose hands a publication of this kind may fall." It is not difficult to apply the principle here laid down to the case of Spitzner and Dekaesmaeker.

A Test of Sobriety.

At the Southwark police-court medical evidence was called recently on behalf of a defendant, a publican, who was charged with being intoxicated upon his own premises. The evidence of the medical man was that the defendant could stand with his eyes shut without swaying, could turn quickly, walk perfectly straight, read and write, and that he could also repeat distinctly, "the scene is truly rural." Mr. Paul Taylor seems to have been struck with the severity of this last test, remarking that it was not a fair one as many men were unable to say "truly rural" even when unquestionably sober. Presumably what the learned magistrate meant was that failure to articulate the prescribed words would not have been convincing evidence of insobriety. In the case in question as the defendant had responded satisfactorily the medical man had applied a test which was decidedly effective. The magistrate in the end dismissed the charge against the accused.

Insanitary Houses.

At the Southwark police-court on March 14th James Mahoney, of Friern-road, East Dulwich, was fined £10 and 4s. costs for failing to remedy the insanitary condition of two houses of which he was the owner. He had apparently had his attention called to their condition and had failed to comply with an order for their improvement. Evidence was given that in one of them inhabited by eight persons there was no water-supply for flushing purposes. The magistrate was further informed that the defendant owned property all over the metropolis, that whenever he was fined he went to prison instead of paying the money, and that a distress would not obtain it as the goods in the house where the defendant lived were owned by his wife. In these circumstances Mr. Paul Taylor fixed a month as the term of imprisonment to be undergone in default of the fine being paid, at which defendant loudly protested. Cases of this kind show that however much passive resistance and delay may be capable of effecting the law can apply considerable pressure in sanitary matters if those who have the power to set the law in motion will do so with energy and perseverance.

THE LANCET.

LONDON: SATURDAY, MARCH 21, 1903.

Efficient Nursing in Workhouses.

IN most of the workhouses of England and Wales the question of the hour is—What is the best means of insuring a continuous supply of competent nurses for the sick and infirm people forming a large proportion of the inmates of those institutions? The question is one that has steadily gained in urgency during the past 30 years—that is, since the commencement of the movement for the improvement of the treatment of the sick and disabled in workhouses. This movement resulted, after the passing of Mr. GATHORNE HARDY'S Act, in the provision of properly constituted wards under the management of skilled and responsible salaried officials. The abolition of the pauper nurse was thus assured. But notwithstanding the fact that the numbers of trained nurses have been increasing year by year the demand for them is still unsatisfied. In the country workhouses, especially in the smaller institutions, the supply has been quite inadequate, so that the Local Government Board recently nominated a departmental committee and allotted to it the task of finding the cause of, and suggesting the remedy for, the difficulty in obtaining probationers. The report issued by that committee has already received critical attention in our columns.[1] It was recently dealt with at length by the Hon. SYDNEY HOLLAND in his presidential address to the members of the Central Poor-law Conference at their thirty-first meeting. Many years and much energy have been devoted by Mr. HOLLAND to the study of nursing questions; his position as Poor-law guardian and as chairman of three London hospitals has afforded him a practical acquaintance with their varied aspects and his observations are consequently worthy of careful attention. We therefore propose to consider some of the points brought forward in his address, which we have before us, and to do so in connexion with the report of the departmental committee on the subject.

Mention may first be made of the explanation advanced by Mr. HOLLAND, and indorsed by other experts on nursing questions, as to the causes of the difficulty in obtaining and keeping a skilled nursing staff in a small workhouse. The most potent of the causes is stated to be "putting a trained woman under an untrained matron" and by so doing making the position of the former person intolerable. While the argument is sound there is something to be said against this wording of the case. No evidence has been given that the "intolerable" position is due to the fact of the matron being untrained. No assurance can be furnished that it would be changed into a tolerable position if the matron were trained. On the contrary, many nursing authorities competent to advise on such a matter have condemned the proposal to appoint persons to the double office of workhouse matron and superintendent nurse. The reason for this condemnation will be readily understood after an examination of the General Consolidated Order of the Poor-law Board of 1847 relating to the work of the matron. In any but the minor workhouses matrons could not possibly perform in an efficient manner all the duties detailed in that Order and at the same time act as superintendent nurses. There are also medical grounds for pronouncing such a combination of offices to be very undesirable. In seeking the causes of the disinclination of nurses to remain in workhouses it will be of some assistance to remember the conditions enumerated below, which may, and generally do, affect the comfort of the nurse to a greater or less extent. The powers of the master and matron are almost unlimited in small matters. There is no trivial incident in the daily routine that they may not take cognisance of and invest with a gravity out of all proportion to its nature. They have a right to interfere in all questions of discipline, and "discipline" may be a very elastic term, embracing many things in the management of sick wards. The matron is in most workhouses the wife of the master. A nurse rarely offends the former without offending the latter. The nurse, then, has powerful odds against her on any point of difference, for in dealing with officials the master and matron generally agree. Although the General Order of the Local Government Board of 1897 debars the matron from interfering with the actual medical treatment of the sick it leaves her, under the older order, with many responsibilities for the food, the clothing, the discipline, and the condition of the patients and sick wards. She has, therefore, ample opportunity for making her presence felt in the infirmary wards. In other words, there are in the department for the sick all the disadvantages of dual control. The hours of duty for the nurse are often very long. The times and duration of recreation periods are meagre and badly defined. They are not infrequently moved or shortened without notice on the ground of urgency. Then there is the difficulty of spending the hours of recreation in an enjoyable or satisfying manner, for many country workhouses are removed from facilities for amusement or instruction. Quite apart from the conditions above stated there are others which make nursing in a small workhouse unattractive to young women. Two may be mentioned. The first is the small number of cases of acute disease to be studied, together with the absence of any instructive amount of surgery. Candidates are soon able to realise that with the limited teaching possible they cannot hope to compete with their more highly-educated sisters from the large towns. The second is the small market value of the three years' training certificate compared with that of one obtained at a general hospital or a large infirmary.

Turning now to the report of the departmental committee we find indications of the methods by the adoption of which it is hoped to bring about a more satisfactory state of affairs in the nursing at country workhouses. Among several suggestions, all more or less good but somewhat lacking in thoroughness, two immediately attract attention chiefly by their unexpectedness and by the fact that they are in opposition to the views and tenets which have steadily taken possession of the minds of all teachers of nursing during the past 20 years. One is that there shall be a

[1] THE LANCET, Feb. 14th, 1903, p. 451.

large reduction in the numbers of the superintendent nurses. The other may be briefly described as a proposal to give to young women 12 months' residence in a small workhouse, allowing them to receive so much instruction as they may be able to obtain (the amount is not defined), and then to send them forth with the title of "qualified nurses." In 1897 the General Order of the Local Government Board stated that it was expedient that superintendent nurses should be appointed and it was required that they should have undergone "for three years at least a course of instruction in the medical and surgical wards of any hospital or infirmary being a training school for nurses and maintaining a resident physician or house surgeon." In 1903 superintendent nurses of this quality are to be reduced in number and young women of the so-called 12 months' training are to be held good enough to take their places. Some may ask with tongue in cheek, "Why not in the small workhouses return to pauper nursing? It would be cheaper and, from the patient's point of view, almost, if not quite, as valuable as that which will be provided should the suggested changes be effected." In the event of such a contingency we may imagine the rush of housemaids anxious to possess the coveted qualification or title for which there is so little to be paid. We may also picture the disgust of those who have borne the burden of three years' exhausting work, not only at the bedside but at the desk, when they perceive the daily diminishing value of the certificate which they have striven so laboriously to obtain. That the many matrons and medical men who have in the past given a large amount of time and thought to the training of probationers will accept without protest the recommendations of the committee or that they will, if these recommendations become established methods, continue to exhibit the same interest and zeal in their efforts cannot for one moment be expected. The following sentence from Mr. HOLLAND'S address well sums up our own view: "It is miserably disappointing to find that in the face of all public opinion, and contrary to every feeling of humanity, the standard of Poor-law nursing is to be thus lowered throughout the country."

Having now considered some of the causes of the failure in the supply of nurses for the workhouses of the country, and having rejected as unsuitable and retrograde the proposals made for an increase in that supply, attention may be drawn to certain factors in the situation which point to the possibility of an improvement in the numbers and quality of the trained nurses annually sent forth. There is no doubt that the teaching capacity of the metropolitan hospitals and infirmaries is not being utilised to the utmost extent. At the large infirmaries a greater number of probationers could be trained. The chief obstacle to increase in the numbers would be the limited residential accommodation possessed by some of them. The extensive hospitals of the Metropolitan Asylums Board, though established for special diseases, constantly receive cases of other diseases and other diseases again arise in their wards as complications; yet these hospitals, with such a wealth of acute ailments available as teaching material, give no systematic training. They absorb the certificated nurses of other institutions and make them their charge nurses. Their own assistant nurses leave in order to go to infirmaries to be trained. With an increase of only 20 per cent. in the numbers of the probationers taught in the infirmaries, and with every hospital of the Metropolitan Asylums Board occupied in teaching, there would be a valuable augmentation in the supply of trained nurses. A word in conclusion upon the training itself. It is to be regretted that there is no uniformity in the systems in operation at the various schools. The numbers of lectures given, the demonstrations attended, the durations of them, and the extent of the subjects treated are all matters of individual arrangement. There is no standard as to the difficulty of the examination, no consensus of opinion as to the best method of giving marks to candidates or as to the percentage that should constitute a "pass." The examiners may or may not have had any experience in teaching nursing. The matrons and medical staffs of the infirmaries have taken up the training of nurses voluntarily and gratuitously. The work is not demanded by the General Consolidated Order. All these are points for consideration by the next departmental committee having to deal with nursing matters. Upon that committee would it not be well that a few hospital and infirmary teachers of nursing should be asked to take seats? In our view this is the first step towards securing a report of practical value.

Enteroptosis or Glenard's Disease.

IN his recently delivered Hunterian lectures Dr. ARTHUR KEITH has after a most painstaking investigation attempted to throw further light upon this exceedingly common, and as yet but little understood, condition. That many and complicated factors are at work may be judged from the fact that his researches have led him to range from the roof of the pharynx to the floor of the pelvis and to investigate the bodies of infants as well as those of persons of advanced years. The lectures, which we have published at full length,[1] teem with points of interest and open up a wide field for controversy. Dr. KEITH evidently approaches his subject more as an anatomist than as a clinician, which is a distinct advantage in that it leads him away from the beaten track usually followed by writers on the subject in question. At the same time he must be prepared to meet objections to his theories which will at once present themselves to the minds of those familiar with the disease in its clinical manifestations. Briefly, Dr. KEITH'S conclusions, which the profuse illustration of the lectures helps to bring out, are as follows:

1. The contraction of the diaphragm is the factor which produces the displacement of the viscera in enteroptosis or Glénard's disease, and, further, that of the various parts of the muscle the crura are the most important agents in producing this result.

2. Before the displacement can be produced, either what he terms the "thoracic supports" of the diaphragm must have yielded or the antagonistic abdominal muscles have been hampered or weakened in their action, as, for example, by tight corsets.

3. The bonds which fix the viscera to the walls of the abdomen are of quite subsidiary importance.

[1] THE LANCET, March 7th (p. 631) and 14th (p. 709), 1903.

Among structures which act as "thoracic supports" of the diaphragm are enumerated "all the structures within the thorax, the heart, the great vessels, the pericardium, the cervical and mediastinal fasciæ, the dorsal mesentery of the thorax and the lungs," the latter by virtue of the negative pressure within the pleural sacs.

Attention is drawn by Dr. KEITH to a striking difference in the level of the diaphragm during rest (expiration) in different adult bodies, a difference so great that what corresponds to full inspiration in one individual may be the level of full expiration in another. The evidence, however, that the individuals with low diaphragms suffered from what would be clinically described as enteroptosis needs some corroboration. Dr. KEITH observes that the movement of the central tendon is decidedly more free than has hitherto been taught. A further observation as to the extent to which the heart is pulled downwards during the inspiratory descent of the muscle is contrary to the observations of others and certainly should be further investigated. The x rays show that the cardiac displacement as viewed from the front, in some individuals at least, is rather upwards than downwards, and possibly due to contraction of the abdominal muscles in forced expiration. Observations of the position and movements of the abdominal viscera in cases of indurative inflammation of the mediastinum should be of value in this connexion and might throw some light on the importance of the mediastinal supports of the diaphragm. Great importance is laid upon the effect of the abdominal muscles in replacing the abdominal viscera when these have been displaced by the contraction of the diaphragm, and the occurrence of enteroptosis is held to be in part a result of the failure of this action of replacement. Abdominal contraction, however, is probably not the only factor concerned, for in the recumbent position at any rate the same replacement can be felt to occur during examination, when the abdominal muscles are certainly not in action to effect the reposition. An ingenious hypothesis is propounded by Dr. KEITH to explain the comparative immunity of the left kidney from displacement, the easily displaced splenic flexure of the colon being supposed to act as a safety valve. Among other things which need to be explained are the occasional occurrence of enteroptosis in adult males without any constricting force having been applied or muscular paralysis being present; the occurrence of Riedel's lobe in infants without other abnormality; isolated displacements of the right kidney or another viscus; and those curious and localised temporary contractures of the large bowel which, by giving rise to sausage-shaped tumours in the regions of the cæcum, transverse colon, and iliac colon, mimic appendicular inflammation, intussusception, and malignant infiltrations.

We have indicated a few of the difficulties which still present themselves in attempting to understand the mechanism of these displacements. Dr. KEITH'S work has certainly added to our knowledge of the subject, but the impression which remains is that the matter is not even yet satisfactorily cleared up. We have to record further work in parallel directions. We publish this week a note from Dr. C. T. ANDREW, one of the demonstrators of anatomy in the University of Aberdeen, which deals with some interesting points allied to those raised by Dr. KEITH in his Hunterian lectures. Dr. ANDREW publishes the result of observations made with a view to ascertain the height of the diaphragm in the two sexes, the object of the inquiry being to find if any relation could be established between the height of the dome, the position of the viscera, and the thickness of the abdominal wall. A sufficient number of examinations have not yet been made for any definite conclusions to be drawn, but from the study made in the dissecting-room of nine consecutive bodies, two male and seven female, the frequency of many so-called abnormalities in the position of the viscera may be inferred.

Liquid Air and Typhoid Bacilli.

THE paper communicated to the Royal Society on March 12th by Dr. ALLAN MACFADYEN of the Jenner Institute marks a very decided advance in our knowledge of the cell-physiology of the bacillus typhi abdominalis, whilst the full confirmation of the preliminary results obtained by the author promises a prophylactic and therapeutic agent in the treatment of typhoid fever which may replace the anti-typhoid "vaccines" and anti-typhoid sera at present in use. The typhoid bacillus is a member of that class of organisms which, although probably producing a powerful toxin as the result of its cell activity, has so far resisted all attempts to separate that toxin from the cell protoplasm of the bacillus itself. In other words, although the bacillus produce a toxin whilst actively multiplying within the body tissues—which toxin is undoubtedly responsible for many of the clinical manifestations of enteric fever—this toxin is insoluble in the ordinary nutrient media employed in the artificial cultivation of the bacillus under laboratory conditions. Hence such "anti"-sera as have been elaborated are bactericidal or anti-bacterial and not actively antitoxic. For some years past Dr. MACFADYEN has been experimenting with various members of the class of bacteria which form these intracellular or so-called "insoluble" toxins, attempting at first to obtain the cell juices by trituration of the bacteria with fine silver sand and subsequent expression by means of a hydraulic press. In all these operations, however, an appreciable amount of heat is evolved, thereby inducing chemical changes in the juice obtained and introducing numerous fallacies in the interpretation of the results of the experiments.

At this juncture the physicist came to the assistance of the biologist. Professor DEWAR'S remarkable observations on the liquefaction of various gases, made during his attempts to reach the absolute zero, showed that at such low temperatures all chemical interchange ceased, although, contrary to preconceived ideas, life was not necessarily destroyed by this suspension of chemical activity. His discoveries further resulted in the appearance of machines capable of the cheap production of liquid air on a commercial basis. Dr. MACFADYEN, working in conjunction with Professor DEWAR, next showed that many species of bacteria could be exposed to the temperature of liquid

air for considerable periods of time—in some cases as long as six months—without destruction or, indeed, loss of vitality. At this temperature, too, bacterial cells are frozen into hard fragile masses which can be successfully triturated *per se* and at a temperature which precludes the possibility of autolytic changes and the cell plasma can be subsequently obtained from the disintegrated mass. The cell juice obtained in this manner from the bacillus typhi abdominalis, Dr. MACFADYEN finds, is extremely toxic, although control experiments prove conclusively that no living typhoid bacilli are present in the material and, further, that this toxin can be easily handled, exactly standardised, and measured into accurate doses. Proceeding onwards in the investigation this typhoid cell juice was employed in the immunisation of animals with the remarkable result that animals thus treated were found to yield an "anti" serum which was at once actively bactericidal and also antitoxic. That the serum possessed both these properties was shown by the result of actual experiments. Animals inoculated first with the "anti" serum and subsequently either with lethal doses of living typhoid bacilli or of toxic cell-plasma were completely protected; on the other hand, control animals receiving only living bacteria or toxin succumbed. Again animals were inoculated with lethal doses of living bacilli or of toxin and some time later were injected with curative doses of the "anti" serum. These animals recovered, whilst death resulted in the control animals which were similarly inoculated but were not treated with the serum.

A wide field for research is at once opened up should further experiments prove the accuracy of the hypothesis, the obvious deduction from a consideration of these experiments, that a perfect antitoxic and anti-bacterial serum can be formed and stored in the blood serum of an animal carefully immunised by the inoculation of the toxic cell plasma of given bacteria. For it is only fair to infer that this hypothesis will equally apply to many other pathogenetic bacteria which resemble the typhoid bacillus in the production of intracellular toxins, and in the fight against which we are at present supplied with but imperfect "anti" sera—e.g., the gonococcus, the streptococcus, the pneumococcus, the cholera vibrio, and so on. This means that the medical profession will have to its hand protective and curative remedies of undoubted potency; whilst the practical value of their application—the substitution of exact dosage of bacterial cell-juice for the present uncertain method of the inoculation of living bacteria—cannot fail to be appreciated by those engaged in the immunisation of animals for the production of commercial "anti" sera. The outcome of this work by Dr. MACFADYEN illustrates in a strikingly beautiful manner the interdependence of research work in apparently widely separated spheres and in this connexion a sentence occurring in THE LANCET of Sept. 20th, 1902, p. 821, in some comments on Professor DEWAR'S presidential address to the British Association for the Advancement of Science, may almost be regarded as prophetic. "This line of research [i.e., the extraction of the cell plasma from bacteria by trituration at the temperature of liquid air] is calculated to throw fresh light on the nature and treatment of disease" were the words we used, and this is what has exactly occurred.

Annotations.

"Ne quid nimis."

THE UNCONTROLLED SALE OF POTABLE SPIRITS.

As we have pointed out before it is a stigma upon the administration of this country that there is practically no control exercised over the sale of spirituous liquors comparable in any sense with the system of supervision over the food-supply. The Sale of Food and Drugs Act, it is true, is not a perfect measure, for now and again it is discovered that its clauses are not able to deal effectively with some species of undoubted fraud. The example of milk-blended butter is a case in point, for a special regulation has had to be framed for dealing with this ingenious sophistication. So far the Government seems to show some concern as to the consumer being fairly dealt with, but it is regrettable to learn that, according to the reply of the Revenue authorities to a well-known firm of Irish whisky distillers, it refuses to entertain any idea of recognising in an official way honest trading in potable spirits. It is nothing short of scandalous that any wicked stuff which contains alcohol of some sort or other may be sold as genuine whisky, rum, or brandy without let or hindrance. All that the Government seems to care about is to secure a huge prize in the shape of revenue without having any regard at all to the character of the spirit which is sold ultimately to the public for the purpose of consumption. We have already alluded in these columns to the very extensive practice of blending grain spirit with malt spirit which prevails in this kingdom, the product being sold in the most audacious way as pure "genuine malt" or "Highland," and so on. It is not true to say that this practice was the result of public demand or taste, it was unquestionably introduced in order that the trade might reap bigger profits than heretofore. There is a vast difference between the price of grain spirit and genuine malt whisky, but the public pays the same whichever article it gets. Such a condition of things is obviously unfair to the public and to the vendor and distiller of genuine malt whisky. The question as to which spirit is better from a health point of view, though that is an important one, has nothing whatever to do with the case, for the practice of substituting a foreign spirit for the genuine article is not justified whatever opinion on hygienic grounds may be held. Unfortunately the practice is so profitable to the blender and the trading in blending has grown to such dimensions that the opposition to any decisive measure of reform is bound to be very great. The trade would vigorously resist such a measure and the Government would shirk the question because it would affect such large interests. No one would wish to interfere with honest commercial transactions, but is it honest to describe a given spirit as malt whisky which contains 60 per cent. or more of spirit derived from grain? It is certainly unfair to the distiller who makes his whisky from the one material—namely, barley malt—from which whisky alone should be made and was, as a matter of fact, entirely made. The Government, however, recognises no distinction between genuine malt whisky and grain spirit, nor will it incur any responsibility as regards guaranteeing either the nature or the age of a given spirit. And yet it is everywhere admitted that for the sake of the health of the consumer such a guarantee should be available to him. False labeling, it would thus appear, is to go on unchecked, though the stuff so described is under the eye of the Revenue authorities who take care to see that duty is paid upon it. It would be but an easy step, and a step of advantage to the whole country, if the Board of Inland

Revenue would indorse the age of matured spirit by means of certificates attached to the labels. The authorities must know from the books of the distillers that the whisky is of the age that it is represented to be. Such a system of control need not be feared by the grain spirit industry, since they are confident in their view that grain spirit or a blend of whisky and grain spirit is preferred by the public or is held by them to be more wholesome than an all-malt spirit. Oddly enough, however, the dealer in grain spirit trembles at the idea of such an innovation, judging from the views expressed by writers in the trade journals. We can never understand why vendors have such an objection to describe their goods accurately when they hold at the same time that they supply these goods in accordance with the demands or the preference of the consumer. In the same way, however, margarine is often maintained to be a better food than butter and yet the temptation cannot be resisted at times to label it butter. We still maintain that the consumer should have some guarantee of the nature, substance, and quality of the beverage which he is drinking as well as of the food which he is eating; and in accordance with this principle, the morality of which nobody can honestly gainsay, some plan is called for which shall help him to gain the genuine article. Surely it is not too much to maintain that the Government should take the lofty view in this manner and encourage honest dealing. Honest dealing is open to everybody and therefore it is absurd to say that by adopting a system of Government guarantee an unfair monopoly would be created.

BACTERIAL LIGHT.

A TELEGRAM through Reuter's Agency was published in the daily papers on March 16th announcing the discovery by a professor in Prague of a lamp lighted by means of bacteria. We suppose that the discovery amounts to an improved method of feeding photogenic bacteria, the existence of which has been known for some years. In THE LANCET of Oct. 13th, 1900, p. 1087, for example, we published particulars which would enable anyone to demonstrate for himself the properties of phosphorescent bacteria. The experiment is quite simple and easily succeeds. All that is necessary is to place the flesh of fresh haddocks or herrings in a 2 or 3 per cent. solution of common salt, keeping the mixture at a temperature of about 7° C. above freezing point. After a few days it will be found that not merely the flesh of the fish but also the whole of the liquid in which it is immersed gives off a pale greenish light which becomes much more brilliant if a little sugar is added. We remarked at the time of writing these particulars that "it is not possible to say whether the culture will ever be carried to such a pitch that the vessel containing it may be used with advantage as a street lamp or a lamp upon our tables, or as a Chinese lantern at our garden parties." Doubtless by paying attention to the needs of these specific bacteria—by employing, for example, highly stimulating food—more intense light than was hitherto the case has been obtained. It is even suggested that the bacterial light might afford a safety lamp for the miner.

THE POSITION OF THE MEDICAL PROFESSION.

A WRITER in *Baily's Magazine of Sports and Pastimes*—an unexpected quarter, by the bye, for serious treatment of a professional question—discourses in the February number upon "the position of the medical profession in this country and the modes of entering it." As to the latter portion of this subject the writer merely details, as might be expected, the various universities and examining bodies, giving some additional information as to length of curriculum and such matters in the various instances. In his estimation of the position of our profession, however, this writer lays himself open to controversy, although in the main we agree with his conclusions. No one can deny that, politically speaking, the medical profession in Great Britain is non-existent. The few individual Members of Parliament who are also medical men combine the qualities by mere coincidence. As medical men their position in Parliament is no different from that of any other Member. As a political force, in fact, the medical profession does not count. Medicine has no Minister and the medical profession as a profession is unrepresented in the councils of the State. Compare this state of matters with that which obtains in the professions of the ecclesiastic and the lawyer. Practically ever since there was a Parliament in England the Archbishop of Canterbury and the Lord Chancellor have sat in that Parliament. Moreover, besides the Lord Chancellor there are other law officers of the Crown. But as to social position we do not agree with the idea of the writer. In our opinion the social position of the medical profession is not, *ceteris paribus*, as a rule, lower than that of members of either of the other two learned professions. With the suggestions for the raising of the status of the profession which are laid down in the article before us we cannot altogether concur. The one-portal system—i.e., an examination in addition to the examinations held by the universities and other bodies and analogous to the "State examination" of foreign countries—*may* come—some day. It would solve many practical and professional difficulties and is the reform for which all interested in British medicine should work. There is certainly room for greater State encouragement of scientific research, but we cannot understand how a practitioner is to be debarred from dispensing his own medicines or restricted in his midwifery practice.

DRAINAGE OF THE PERICARDIUM.

THE first suggestion to evacuate the fluid in a case of pericardial effusion was made more than 250 years ago, for Riolan in 1648 in his "Eucheiridium Anatomicum" advocated tapping the pericardium through a trephine opening in the sternum. The recommendation was repeated 100 years later by Sénac, though he advised that the opening should be made to the left of the sternum where the left pleura leaves a vacant space. In spite of repeated suggestions that paracentesis or incision of the pericardium should be made in cases of serous or purulent effusion it does not appear that any surgeon ventured to put into practice any of the procedures advised until, in 1798, Desault endeavoured to incise the pericardium in a case which had been diagnosed as pericarditis with effusion, but unfortunately it proved to be a localised pleurisy situated in front of the pericardium. The first successful incision of the pericardium appears to have been performed by Romero of Barcelona in 1819. He made an incision between the fifth and sixth ribs on the left side opposite the junction of the ribs and cartilages, but as he does not seem to have wounded the pleura some have doubted whether the effusion was really pericardial. For serious effusion the use of a trocar or aspirator is usually sufficient and this operation has now been performed a large number of times. Incision is seldom resorted to now unless the fluid is purulent or it is desired to drain the pericardial sac. A very important case of drainage of the pericardium was recorded by Dr. Samuel West in 1883. In this case over 80 ounces of pus escaped and recovery ensued. At the present time there is a lack of unanimity as to the best route by which to approach the pericardium. Usually the fourth or fifth space is chosen for the incision and a portion of the fifth rib may or may not be resected. In the present number of THE LANCET a case is reported from St. George's Hospital which was under the care of Dr. Arthur Latham and Mr. H. S. Pendlebury in which the pericardial cavity was greatly

distended. By tapping 95 ounces of serous fluid were withdrawn, but as it reaccumulated the pericardium was drained by a procedure suggested in 1890 by Mr. H. Allingham. By this method the pericardium is opened through the space between the xiphoid cartilage and the seventh costal cartilage and the drainage tubes are thus inserted in the most dependent portion of the sac. The operation has the further advantage that it does not require the removal of any rib cartilage, though in this respect Mr. Pendlebury deviated from Mr. Allingham's method, for he excised about two inches of the seventh cartilage in order to obtain more room. This operation appears to have been first described by Larrey in 1829. It was suggested to him by a case of a soldier who had been wounded by a stab. The weapon had pierced the pericardium, passing between the seventh rib and the xiphoid cartilage; the patient recovered and Larrey was impressed with the ease and apparent safety with which the pericardium was reached. He also expressed the opinion that adhesion between the heart and pericardium would be less likely to follow this operation than any other. There is much to be said in favour of this route and its dangers are few. The risk of wounding the peritoneum is small and should be avoided by care; the danger of opening the pleura is practically non existent; and even if the internal mammary artery or its derivative the superior epigastric artery is wounded it may be tied with ease. On the whole, the method appears to be one well deserving of the attention of surgeons. Mr. Pendlebury's case seems to be the first in which this method has been employed and its successful issue is a further argument for its employment in future.

POLYDACTYLISM IN A LAW COURT.

CASES in which there has been an excess in the number of fingers have been recorded at intervals from a very early period of history. In the time of King David a Philistine was slain who "had on every hand six fingers and on every foot six toes, four-and-twenty in number," and, indeed, in the most usual form of polydactylism both hands and feet are affected. A curious medico-legal case is reported from Jamaica. In a paternity suit the mother adduced as confirmatory evidence the fact that the child resembled the alleged father in having six fingers on each hand. The value of this evidence depends partly on the hereditariness of the deformity and partly on its rarity. That polydactylism tends to be transmitted from father to child there can be no doubt. Numerous cases are recorded where a father so affected has begotten a son similarly deformed. No small number of instances have been published in which three generations have been affected. There are a few cases on record in which the deformity has involved four or even five generations. A very good instance of this is published in the *Revue Internationale des Sciences Médicales* for November, 1886. The original person affected, a man, was born in 1752, and in all 14 members of the family possessed some abnormality of the fingers or toes, the majority possessing six fingers on each hand, with or without a similar affection of the toes. A still more remarkable case was recorded by Mr. C. E. Whitcher of Hove in THE LANCET of March 21st, 1896, p. 804. He delivered a young woman of a male child having six digits on each hand and he was informed by the patient's mother that this peculiarity had occurred in her family for eight successive generations. Of course, such lengthy histories as this must be received with some caution, as eight generations must have in all probability extended over 200 years. Still, after making all due allowance for the very natural tendency to exaggerate the duration of a family peculiarity, we are justified in concluding that polydactylism is markedly hereditary. The rarity of such a deformity must also be taken into account in estimating its value as evidence of paternity, and it is certainly rare, but by no means extremely rare, and it may appear in a child where no history is obtainable of its having occurred in any of his ancestors. There is yet another point that must be borne in mind in bastardy cases. The occurrence of such a deformity might suggest to the mother the man to whom the child might most readily be attributed. On the whole, therefore, the mere fact that an infant had six fingers on each hand would not suffice to prove that he was the child of a man similarly endowed and even as confirmatory evidence it would not be of any great value. Of course, it would appeal strongly to the popular mind and few juries would resist such evidence. The report of the Jamaica case already mentioned does not inform us of the result, and we are therefore in doubt as to the value that the court put on the polydactylism.

PROFESSOR VON BERGMANN ON DRESSING MATERIAL IN MODERN WARFARE.

IN Professor von Bergmann's opinion[1] the greatest progress which has been realised with regard to dressing material in war-time consists in the adoption by civilised nations of conventional models. The medical officers of the victorious army being under the necessity of treating the enemy's wounded are thus enabled to do so effectually and economically by utilising the captured materials and appliances with the employment of which they are familiar. It is of secondary importance, continues Professor von Bergmann, whether dressing materials are impregnated or not with antiseptics. Gauze impregnated with iodoform or corrosive sublimate gradually loses its antiseptic properties, and owing to the complicated way in which it is packed, as well as to a widespread but exaggerated belief in its virtues, the user often fails to appreciate the need for re-applying disinfection. In the case of ordinary gauze, however, he does not hesitate to submit the readily opened packet to the sterilising influence of steam. In all base hospitals, and more especially in such as are nearest to the front, it is desirable that disinfecting appliances should be provided in which not only dressing material but also bedding and clothing can be sterilised. It would be difficult to attach these machines to moveable field hospitals, but nowadays there should be no lack of dressing requirements in establishments of this description. Thanks to compression they can now carry a hundred times more than they could formerly. In the ambulance at Tutchenitza, at a time when neither gauze nor cotton-wool was known in a compressed form, the supply of both of these substances was nevertheless sufficient, so it seems probable that notwithstanding modern exigencies their provision in the future is assured. Professor von Bergmann objects to ready-made splints—even those recommended by Hessing. The bulk of the stock would be so enormous that the entire transport of an army corps would be insufficient for its conveyance. He recommends thin elastic slabs of beech similar to those used by German cobblers for insertion between two layers of sole-leather (Schusterspäne). The injured limb having been lightly swathed in cotton-wool the Schusterspan should be moulded *in situ* and retained in position by a few turns of plastered gauze. If this process be adopted the operator will save not only his gauze but also his time. Cardboard cannot be employed as a substitute for the beech slabs, even when it has been treated with amianth. In combination with gypsum cardboard often remains soft and flexible. Professor von Bergmann is well aware of the great difficulty in procuring gypsum fit for use on active service, as well as of its liability to injury from moisture. At Plevna he ordered a cartload of modeller's plaster from Bucharest, but

[1] First Aid on the Field of Battle. Jena: G. Fischer. 1902.

when it arrived after exposure to three days of torrential rain it had become as hard as stone. Even in this unpromising condition, however, he was able to make some use of it by breaking the mass up into small pieces and re-baking them in the soldiers' bowls.

CHRISTIAN SCIENCE AND THE CLERGY.

WE are glad to see that some at least of the clergy are instructing their flocks as to the fallacies of the heresy which calls itself Christian Science. There lies before us a report of a sermon preached in the church of St. Mary, Plaistow, by the vicar, the Rev. John Bond, on March 1st. The average lay churchman knows but little theology, so that it is refreshing to find a parish priest pointing out in simple language that Christian Science is merely a revival of old heresies. We ourselves drew attention to this fact in THE LANCET of Nov. 22nd, 1902, p. 1109. Gnosticism, Manichæism, and Docetism are all revived in Mrs. Eddy's fatuous description of her belief, and Mr. Bond drew attention to the fact that "Gnostic" is merely the Greek for "Scientist." It is not our province to interfere with anyone's religious belief, but it is our duty to point out the harmfulness of Christian Science from a medical point of view. We congratulate Mr. Bond, however, upon his plain exposure of the craze from his side of the question.

PILOCARPINE IN THE TREATMENT OF PNEUMONIA.

PILOCARPINE has been recommended as a therapeutic agent in cases of lobar pneumonia by Dr. Poulet in France, by Dr. Szik'ai and Dr. Palkovics in Hungary, and in the *Wiener Medicinische Wochenschrift*, Nos. 48 and 49, 1902, Stabsarzt Otto Pelzl records his experience of an extended trial of this drug in a military hospital at Budapest. A solution of 0·1 gramme of pilocarpine hydrochloride in 10 grammes of distilled water was employed, of which 20 drops containing 0·0125 gramme were given by the mouth on sugar, which in most cases produced copious sweating. If this failed a further 10 drops were administered, though as a rule one dose only was given, since repeated smaller doses are much more likely to cause depression of the heart and subsequent collapse and less likely to produce the sweating desired. Occasionally a second dose was given on a subsequent day. The general treatment of the cases was as follows: infusions of digitalis and ipecacuanha, ice applications to the chest, but no antipyretics, narcotics, or alcohol except some wine from the fourth or fifth day onwards. The results of the pilocarpine treatment are that the pain on breathing and coughing becomes much less or completely disappears, the breathing is deeper and slower, and the patient is evidently more comfortable, although the fever and the pulmonary physical signs remain the same and the inflamed lobe passes through the usual stages though somewhat more quickly. The administration of pilocarpine does not prevent the spread of the disease to other lobes, which if it occur gives rise to the customary cycle of changes, though the inflammation may be of a milder degree than in the part of the lung originally attacked. When the pilocarpine is given between the third and fifth days the crisis usually occurs from 24 to 48 hours later, if given between the sixth and eighth days the crisis may occur almost at once, and if given after this date it appears to be without any influence on the temperature curve. The critical fall after pilocarpine is apt to be slightly prolonged compared with that which occurs in other cases. Various explanations have been suggested of the beneficial influence of pilocarpine. According to Dr. Poulet its action is due to the increased secretion from the bronchi promoting the removal of the pneumococci, while, according to Dr. Palkovics, the increased sweating aids the elimination of the toxins formed by the pneumococcus. Dr. Pelzl himself suggests that the loss of pain is due, firstly, to the general dilatation of the vessels producing *inter alia* slight serous exudation on to the pleural surfaces thus rendering their movements less painful, and secondly, to an increased exudation from the bronchi and alveoli, in virtue of which the expectoration becomes more fluid and is easily coughed up, and hence the ultimate resolution is promoted; in other words, the action of the pilocarpine is mechanical, not specific. Apparently the general type of the disease in the above series of cases was mild, as no fatal case occurred either in those treated with pilocarpine or in those treated in the ordinary way, and it might be objected that pneumonia was less severe and fatal among the presumably healthy young adults from whom the army is recruited, but the general statistics of the Imperial army showed in 1899, 2002 cases of pneumonia and in 1900 1744 cases with a percentage case-mortality of 7·1 and 6·8 respectively. As a result of his employment of pilocarpine Dr. Pelzl concludes that in almost all cases it renders the patient more comfortable, shortens the disease, promotes resolution, and accelerates convalescence, and in no case did he observe any untoward effects, such as cardiac failure or collapse, even though the drug was administered in asthenic cases and in one patient who was the subject of coexistent mitral regurgitation. No mention is made of alcoholism in the notes of the cases.

THE MEDICAL OFFICER OF THE BALLACHULISH SLATE QUARRIES.

WE have upon various previous occasions referred to the case of Dr. Lachlan Grant, medical officer to the Ballachulish slate quarries.[1] Dr. Grant was dismissed from the service of the company on July 6th, 1902, and at the time no reason was alleged for the dismissal. Later it came out that Dr. Grant had on entering into the company's service signed an agreement by which his service at the quarries and his general practice in the district should cease on a month's notice being given. These conditions had never been seen by the medical committee of the workmen, which committee had been recognised by the present company which leased the quarries in 1894. The committee had control of all matters pertaining to medical arrangements and had practically existed for some 40 years. No such conditions as were imposed upon Dr. Grant had been imposed upon any former medical officer, the manager had no instructions to impose them upon Dr. Grant, and the company had no authority to enter into any agreement with Dr. Grant for medical attendance on the men. The men therefore re-elected Dr. Grant and declined to permit the company to interfere in the affairs of the medical club. The company then applied to the Court of Session to have Dr. Grant interdicted from attending on the men or from practising in the district. This action is still pending. The men are at present locked out and they have now determined to appeal to the Law Courts to have the agreement of Dr. Grant with the company set aside on the grounds that the manager went beyond his instructions in imposing the conditions referred to above upon Dr. Grant and that the company had no authority to make any agreement concerning the medical club. We may mention that Dr. Grant only signed the agreement on representations from the manager that the conditions were attached to the appointment. As Dr. Grant's case is *sub judice* we are precluded from making any comment, but with regard to the men's action a fund is being raised to enable them to fight their case. Subscriptions to the fund will be received by the editor of the

[1] THE LANCET, August 2nd (p. 300) and 16th (p. 449), and Nov. 1st (p. 1229), and 15th, 1902 (p. 1358).

Highland News, Inverness, or by any of the following: Donald Macmillan, Angus Clark, and Peter Mackenzie, all of Ballachulish, and respectively the chairman, secretary, and treasurer of the medical committee. We may point out that the question of the legality or not of the company's action is an important one to the medical profession in general.

THE DISTRIBUTION OF PLAGUE.

As regards the Mauritius, a telegram from the Governor received at the Colonial Office on March 13th states that for the week ending March 12th there were 2 fatal cases of plague. As regards Hong-Kong a telegram from the Governor received at the Colonial Office on March 17th states that for the week ending March 14th there were 17 cases of plague and 17 deaths from the disease.

THE HOSPITALS OF ICELAND.

THE *Archives de Médecine Navale* for the current month opens with an illustrated article on the hospital establishments of Iceland by Dr. Fallier, medical officer of the first class in the French navy. Until recently Reikiavik, the capital of the island, possessed only one small hospital where foreign sailors were admissible for treatment. It contained ten beds in one ward and was well managed by the Sisters of Saint Joseph of Chambéry, but besides being "a little primitive and insufficient" it was also excessively damp in wet weather. For the Icelanders another so-called hospital of ten beds exists in the town, but it is little worthy of the name, being merely an old dwelling-house almost entirely destitute of suitable arrangements. Last summer a new hospital of 40 beds was constructed for the Sisters by means of contributions from France, Denmark, and England. It is capable of accommodating 50 patients and contains, moreover, two spacious glazed galleries facing south for the reception of tuberculous cases. The accommodation thus afforded is ample for all requirements and yet another new hospital has been started under the auspices of the Société Dunkerquoise. In Dr. Fallier's opinion there is no need at all for this establishment which might be advantageously located elsewhere and, moreover, the difficulty of finding an efficient staff would seem to be almost insuperable, as the Sisters, owing to paucity of numbers, are unable to take charge. At Faskrudfjord the Sisters of Saint Joseph keep up another well-ordered hospital, but here, too, the Société Dunkerquoise proposes to establish one of 20 beds to replace an existing structure for ten beds from which operating-rooms, mortuary, lavatory, and laundry are all lacking. In this case, as at Reikiavik, Dr. Fallier anticipates trouble in securing qualified hospital attendants. At Seydisfjord there is an Icelandic hospital with beds for 17 patients and two isolation wards. It is well managed and arranged, but owing to the inaccessible situation of the town at the head of a narrow winding fjord the fishing fleets do not make much use of it. Akreyri, the second town in Iceland, is even less accessible, as it is more than 60 miles from the coast. For many years not a single foreign sailor has been treated in the hospital which contains 16 beds. In this establishment the operating-room, with its rounded angles, cemented walls, and mosaic flooring, "would not disgrace a modern hospital in continental Europe." Isafjord has a hospital with 16 beds which are in medical charge of Dr. Thorsteinsson, a young Icelander who can speak French fluently. The subordinate staff would, however, seem to leave something to be desired. It consists of three females, two ward servants and a cook. The last hospital on the list is at Patrixfjord. It was opened last May but the equipment is not yet entirely available. When completely furnished the building will contain 12 beds and as it is well situated in a sheltered position at the entrance of a fjord it should be largely utilised by the fishermen. In conclusion, Dr. Fallier points out that while the eastern and western coasts are fairly well supplied with hospital accommodation, and to a less extent the northern, the southern, although the most dangerous as well as the most frequented during the first part of the fishing season, remains absolutely destitute. Instead of duplicating hospitals at Reikiavik it would be better, he thinks, if a small establishment were to be located on one of the Westmann islands where already the services of a qualified medical resident are available.

CHEMISTRY AT INTENSELY LOW TEMPERATURES.

IT is well known from the classic researches of Professor Dewar on low temperatures that under the influence of intense cold the great majority of, and probably all (if the temperature be sufficiently reduced), chemical interactions are entirely suspended. According, however, to a paper recently communicated by M. Moissan to the French Academy of Sciences that highly energetic element fluorine enters readily into affinity with hydrogen even at a temperature as low as 20° absolute (– 253° C.). When pure fluorine gas was allowed to come into contact with liquid hydrogen there was a violent explosion. By means of liquid hydrogen fluorine, isolated in the pure state by M. Moissan, has been liquefied and its melting point proves to be about 40° absolute. Fluorine is a remarkable, if not a unique, instance of an element preserving its powerful affinity for another element at excessively low temperatures. As an example of quite the reverse kind sodium will float on liquid air without the slightest sign of combining.

ON MENTAL DISTURBANCES FOLLOWING SURGICAL OPERATIONS.

IN the *Archives de Neurologie* for March Dr. Lucien Picqué and Dr. Marcel Briand publish a lengthy and important paper on mental disturbances or psychoses following surgical operations and make an attempt to summarise those facts which are well established and to add certain new observations made by themselves. Under the term "post-operative psychoses" they include only delusions with or without mental confusion and affecting the intellectual functions only. Other mental disturbances of a neurasthenic or hypochondriacal character which may manifest themselves after operation, and which have been already described in THE LANCET,[1] are not included in the category of post-operative psychoses. Moreover, all forms of cerebral excitement or delirium which may persist after the operation and which may be attributable to an undue sensitiveness of the patient to the anæsthetic are grouped by Dr. Picqué and Dr. Briand in a separate class—viz., as forms of toxic pseudo-delirium. These are of transitory character, not lasting, as a rule, more than one or two days, whereas the true post-operative psychoses are serious forms of mental disturbance which require care and treatment in an asylum. Such cases of post-operative insanity usually reveal on inquiry a history of hereditary predisposition to mental disorder. Thus among the cases personally investigated by Dr. Picqué and Dr. Briand or collected from published records it was usual to find on inquiry a pre-existing taint or history of mental weakness, hysteria, hypochondriasis, or other neurosis. Gynæcological operations on women were not found to be more often followed by mental disorder than other operations when cases of neurasthenia were excluded. The symptoms of the

[1] Unusual Forms of Nervous Prostration following Operation, THE LANCET, May 17th, 1902, p. 1415.

post-operative psychoses were very variable. They comprised maniacal excitement, delusions of persecution, and melancholic depression with or without delusions. Operations involving the loss of one or both breasts in women, castration, and colotomy with the formation of an artificial anus tended to favour the development of melancholia. The following cases serve to illustrate the points already mentioned. In Case 1 the patient was a Jewess, aged 36 years. Her father was a drunkard and she had a cousin who was insane. The patient herself was an excitable person. After undergoing a slight surgical operation she developed melancholia with delusions that parts of the body were dead or non-existent, hallucinations, and suicidal impulses. In Case 2 the patient was a man, aged 47 years, and of intemperate habits. For about 15 years he had suffered from attacks of vertigo and occasionally he had passed urine involuntarily during an attack. He had marked facial asymmetry. 18 months after an operation for inguinal hernia it was found that considerable mental deterioration had occurred and that fixed delusions of ruin were present. This condition was the result of a steady and progressive mental alienation which set in after the operation and in the course of which he suffered from attacks of stupor with loss of consciousness. Dr. Picqué and Dr. Briand cite in considerable detail the histories of seven other cases illustrating various points in regard to the etiology and development of post-operative psychoses and come to the conclusion that in predisposed subjects insanity may definitely show itself immediately after surgical operations.

CHYLIFORM ASCITES.

IN the *Boston Medical and Surgical Journal* of Jan. 29th Dr. P. P. Corney and Dr. W. W. McKibben have published a case of the comparatively rare condition of chyliform ascites which is of unusual interest. A man, aged 61 years, became ill on March 18th, 1902, with chill, severe pain in the right groin and leg, and high fever. The right leg became red and swollen and the inflammation extended across the abdomen to the other side and also across the back and loins, but not to the other leg. After a few days the inflammation and the symptoms began to subside but the patient was confined to bed in consequence of the swelling of the leg. He improved so much as to be able to get up though the leg remained swollen. About June 1st a second attack of cellulitis occurred with the same symptoms, but the inflammation extended to the left shoulder and down the arm to the elbow and also to the left leg. About July 20th he had a third attack which was less severe than the others but the œdema became general and his appetite began to fail. He grew more and more bloated, his breathing was laboured, and the abdomen became so swollen that paracentesis was performed on August 18th. About seven pints of what seemed to be pure chyle escaped. This fluid was discharged until his death which took place on Sept. 14th. During the illness the urine was several times examined but was always found to be normal. At the necropsy the abdomen was found to be half full of bloody fluid. The abdominal lymphatics were enlarged and on the intestines they were varicose and presented a beaded appearance. The left pleural cavity was full of straw-coloured fluid. The thoracic duct was much enlarged. It appeared to have been obstructed near the left apex of the lung, which contained an old tuberculous focus and was firmly adherent to the parietal pleura. The effused fluid showed under the microscope extremely minute granules, "so minute that they could not be recognised as fat globules." A litre of the fluid yielded on analysis 9·75 grammes of albuminoids and 1·23 grammes of fat. It is interesting that all the parts drained by the thoracic duct —both legs, the abdominal cavity, the left thorax, and the left arm—contained effused fluid, while the parts drained by the right lymphatic duct did not. Evidently the obstruction had predisposed to the attacks of lymphangitis of the legs. Dr. Corney and Dr. McKibben have described their case as one of chylous ascites but there is no evidence that the effusion contained chyle. The case seems to have been an example of chyliform ascites and the lactescent character of the fluid seems to have been due to degeneration of extravasated cells.

THE FOURTEENTH INTERNATIONAL CONGRESS OF MEDICINE, MADRID.

IT is of the utmost importance that members of the Congress who intend to visit Spain next month should comply with the requirements of the railway companies in regard to the issue of tickets at reduced rates. Each passenger must be provided with a letter of invitation signed personally by the President of the Congress and he must send this letter of invitation with his card of membership (1) to Messrs. Cook and Son, Ludgate Circus, London, E.C., who will make all the necessary arrangements from London to the destination; (2) to M. Sartiaux, Ingénieur en Chef de l'Exploitation, Chemin de Fer du Nord, Paris. M. Sartiaux will indorse the letter of invitation and on its return tickets to Paris can be obtained at a reduced rate at Charing Cross or Victoria Stations. Passengers must re-book in Paris at the Orleans station and again present their letter of invitation, and it is probable that they must book again at Irun. No letters of invitation have yet been received by members in England so far as is known and it is desirable, therefore, that each member should write to the Secretary-General at Madrid, Dr. Fernandez-Caro, Facultad de Medicina, asking that one shall be sent to him as soon as possible. The letter of invitation is a much more important document in the eyes of the railway companies than the card of membership and unless it is presented properly *visée* no reduction of fare will be granted. Members who wish to travel from Paris by the Sud Express train de luxe should book their places beforehand. Sleeping-car places by the night express from Paris should also be engaged beforehand by writing to the Continental Inquiry Office, S.E. & C. Railway, Victoria Station, London, S.W. The additional cost over the first-class fare is rather more than £2 for each person. Every traveller should provide himself with a passport.

MEMORIAL TO THE LATE PROFESSOR MAX VON PETTENKOFER.

A MEETING of the general committee formed in this country to coöperate with the Munich committee for the purpose of providing the above memorial was held at 19, Savile-row on March 16th. A small executive committee was elected, consisting of Dr. W. H. Corfield, Dr. R. Deane Sweeting, and Dr. Christopher Childs. This executive committee was empowered to complete the arrangements for collecting subscriptions in this country and to forward the amount collected to the Bürgermeister of Munich. The amount of subscriptions promised by individuals varies from one to five guineas. Smaller sums than these would gladly be accepted by the committee. It is believed that there are many in this country who recognise the great services rendered by von Pettenkofer to the science of hygiene and would like to be associated in this act of homage to his memory. The general committee comprises many of the highest authorities on hygiene and public health in the United Kingdom. In Germany over £3000 have been subscribed. Committees have been formed in Paris, Vienna, and Athens

to coöperate as national representatives with the Munich committee. It is understood that the memorial will take the form of a monument to be set up in Munich. The subscription list (for this country) will be closed on March 31st. All subscriptions should be sent to the honorary treasurer, Dr. Christopher Childs, 10, Manchester-square, London, W.

THE CRUSADE AGAINST MEASLES.

WE have frequently drawn attention in THE LANCET to the very high death-toll which is annually levied by measles in England and Wales, and especially among the infantile population. Accordingly we are gratified to note that in two important English cities, at any rate, the crusade against this disease is proceeding in earnest. Thus we find that in Norwich the city council has, on the advice of its medical officer of health, agreed to continue for another year the payment of a fee to medical practitioners for the voluntary notification of cases of measles. In the administrative County of London the provisions of the Public Health (London) Act of 1891 have been (by a vote of the county council) made to apply to measles. In other words, the county council has statutorily declared measles to be a dangerous infectious disease and has resolved to take steps under the Act for its suppression. Having regard to the almost universal prevalence of this infantile scourge we fear that the authorities will find the cost of notification somewhat heavy, but there is no doubt that an accurate knowledge of the whereabouts of fresh cases of measles, especially in schools, will enable the authorities to check the spread of the disease. At any rate, the experiment is well worth trying and we shall watch the result with keen interest.

THE BLOOD AND ITS REACTION IN MENTAL DISEASE.

THE character and reaction of the blood in mental disease and the variations which they undergo in the course of different forms of insanity are matters regarding which little is as yet known. That important changes occur in the blood, however, is now known from systematic observations made by many investigators upon epilepsy and epileptic insanity and from isolated observations made on other forms of mental disease. In the *Journal of Mental Science* for January last Dr. Robert Pugh, assistant medical officer of the Claybury Asylum, has published an interesting series of studies on the reaction of the blood in mental disease. The method of estimating the relative degree of alkalinity of the blood was that introduced by Dr. A. E. Wright and already described in THE LANCET.[1] In estimating the normal alkalinity of the blood "control cases" were selected from the staff of Claybury Asylum for comparison with the studies made on patients. Care was taken to avoid the times during which the alkalinity of the blood is stated to vary—e.g., after food and after severe muscular exercise—and the blood was taken at a stated time, 11 A.M., on successive days for each case. In all 93 patients were thus examined. The information obtained in different classes of mental disease are summarised as follows. Epilepsy: 40 cases were examined. The typical conditions as regards the blood consisted of, first, a low average alkalinity in the period between epileptic fits; secondly, a sudden and pronounced fall immediately prior to a fit; and, thirdly, a further diminution soon after the fit was over. All the cases studied showed low alkalinity. This condition may be explained, adds Dr. Pugh, by "the gradual accumulation of toxins of an acid nature in the blood," probably arising from deficient metabolism of the body tissues generally. The second condition was difficult to account for, while the third was regarded as due to the production of sarco-lactic and carbonic acids during the violent tonic and clonic convulsions of the epileptic fit. General paralysis of the insane: 23 cases were examined, two of these being juvenile cases. All showed a low degree of alkalinity of the blood much below the average of the control cases, the more acute cases of general paralysis showing an exceptionally low value in this respect. The lowering of the alkalinity in this disease, concludes Dr. Pugh, is constant, well-marked, and varies according to the type, duration, and progress of the disease. The most marked lowering of the alkalinity occurred in connexion with the convulsive seizures of general paralysis. Dementia: 10 cases were examined. These included six cases of secondary dementia, three cases of senile dementia, and one of organic dementia. The alkalinity in these cases did not show any marked variations beyond physiological limits. Mania: 15 cases were examined. Of these 10 were cases of acute and five of chronic mania. In the acute cases and especially in those patients who manifested intense motor restlessness the alkalinity was lowered. During comparative repose the alkalinity remained within normal limits. Melancholia: 10 cases were examined. Of these eight suffered from acute and intense depression; the remaining two were chronic cases. The alkalinity in these cases was fairly constant and varied within normal limits. One of the general conclusions reached was that the alkalinity of the blood was normal in chronic mania, chronic melancholia, and chronic dementia. Lowering of the alkalinity occurred in epilepsy, especially before a fit, in mania during the period of restlessness and agitation, and in general paralysis of the insane, and with this lowered alkalinity there were associated a state of depraved bodily nutrition and a co-existent toxæmia which profoundly disturbed consciousness.

[1] THE LANCET, Sept. 13th, 1897, p. 719.

RECENT OBSERVATIONS ON REFLEX ACTION AND TENDON PHENOMENA IN HEALTH AND DISEASE.

THE earlier observers were unable to obtain the knee-jerk in a certain proportion of healthy children and adults—e.g., Eulenburg found it absent 16 times in 338 healthy children and Möbius noticed that it was not infrequently absent in the aged. However, since the introduction of certain methods for "reinforcement," of which the best known is that of Jendrassik, consisting in the execution of some voluntary movement, such as grasping the hands in front of the trunk and pulling as if to separate them, it has been shown by Sternberg and others that the knee-jerk is rarely, if ever, absent in health either in infants, children, or adults even in advanced age. Dr. Jenö Kollarits in the *Deutsche Zeitschrift für Nervenheilkunde*, Band xxiii., 1902, S. 89, records the results of his investigation of the condition of the knee-jerks, the Achilles and triceps tendon reflexes, and the scapula-periosteal reflex in 100 healthy individuals and in 100 cases of tabes dorsalis. In the former, by adopting various methods of reinforcement like that of Jendrassik, he obtained all these reflexes in every case. In the tabetics, adopting similar precautions, he found that all four were absent in 31 cases, all four were present in 25, in 11 the tendo-Achillis jerk was alone absent, and in one case the knee-jerk alone was not elicited. Dr. A. Bickel in the same journal (Band xxii., 1902, S. 163) records the result of an investigation of Babinsky's sign (the dorsiflexion of the toes on stroking the sole of the foot) in 300 persons, in which he found, as previous investigators have done, that the sign is very seldom obtained in health and only exceptionally in hysteria, while it is always distinct in patients with a lesion of the pyramidal tract. On the other hand, in a considerable number of healthy persons it was obtained in a very definite and striking manner during sleep, although quite absent in

the waking condition. Moreover, at a certain stage of chloroform narcosis a positive reaction can be obtained.

IMPORTED FRESH AND STERILISED MILK.

WE have often urged that a sharp look-out should be kept upon the milk sent to these shores from other countries. It would appear that hitherto the attention of the Government laboratory has not been directed to this question to the extent to which in the interests of the public it should be. During the year 1902, for example, only 11 samples were obtained and examined, and two of these were sterilised milk which proved to be deficient in fat. We are glad to learn, according to the reply of Mr. Ritchie to a question upon the subject asked by Sir Edward Strachey in the House of Commons last week, that arrangements have been made, with the concurrence of the principal of the Government laboratory, whereby a considerable number of samples of this class of article are to be obtained in future. That such a step is necessary is obvious from the fact that the total imports of fresh milk during 1902 amounted to 13,559 hundredweights, and of preserved milk, including sterilised milk, to 3058 hundredweights. We think that it is very important that these examinations should include a bacteriological analysis.

THE FIFTH INTERNATIONAL CONGRESS ON DERMATOLOGY.

THE following three themes have been arranged for by the organising committee of the Fifth International Congress on Dermatology which is to take place in Berlin in 1904 from Sept. 13th to 17th—viz., (1) The Syphilitic Diseases of the Circulatory System; (2) Skin Diseases with Metabolic Anomalies; and (3) Epithelioma and its Treatment. All these subjects are of importance. The vascular changes in syphilis are numerous, but we should have thought they would prove of more interest to those who devote their attention to general medicine than to those who are concerned with syphilography and dermatology. Still, the subject is very wide and deserves discussion, for the vascular manifestations of syphilis are frequently disregarded or, if noticed, their syphilitic origin is not recognised. The second subject, skin diseases with ametabolic nomalies, is one of great interest. The anomalies of metabolism which may occur during the course of skin diseases are in many cases great, for the skin disease may be only the outward expression of a serious nutritional change, but even in diseases which primarily affect the skin the general metabolic changes deserve more attention than they often receive. The course that the discussion takes will depend greatly on the opening speeches. The third subject for debate is the treatment of epithelioma and the name is undoubtedly intended to include rodent ulcer. The main novelty in the subject will probably be the utility of the Finsen light and the x rays in the treatment of malignant affections of the skin and it is not unlikely that somewhat contradictory opinions will be expressed. That both these methods are of some value few will be found to deny, but the limits of their usefulness are more difficult to gauge. Altogether the subjects are such as appeal not only to the dermatological specialist but to all who practise medicine or surgery.

His Royal Highness the Duke of Cambridge, K.G., President of the Sanitary Institute, will preside at the annual dinner of the institute to be held on Friday, May 15th, at the Hotel Cecil.

DR. C. F. HUTCHINSON has been elected Member of Parliament for the Rye Division of Sussex by a majority of 534 votes. Dr. Hutchinson, who has retired from medical practice, graduated as M.D. of the University of Edinburgh in 1874 and is a Justice of the Peace for East Sussex. He formerly practised at Scarborough and has been more than once an interesting contributor to our columns.

THE London School of Tropical Medicine announces that the Craggs Research Prize of £50 will be awarded in October to a past or present student of the school who during the current year has made the most valuable contribution to tropical medicine. Full information may be obtained from the medical tutor at the school, Royal Albert Docks, London.

A CASE is coming on for hearing shortly in the King's Bench Division in which a householder who has had smallpox in his house is bringing an action for damages against the sanitary authority of the district concerned. The questions at issue are of some importance to sanitary authorities generally.

OUR readers may be interested to know that Richard Gordon Gatling, the inventor of the celebrated Gatling gun, whose death was recently announced, was a medical man. Mr. Gatling, who at the time of his death had reached the ripe age of 84 years, graduated 62 years ago at the Ohio Medical College.

Professor Sir Michael Foster, K.C.B., has announced his intention of resigning the chair of Physiology in the University of Cambridge at Michaelmas.

THE METROPOLIS WATER ACT.

THE Local Government Board, under the provisions of the Metropolis Water Act, 1902, has issued the following regulations as to the first meeting and proceedings of the Metropolitan Water Board:—

To the persons appointed as members of the Metropolitan Water Board; to the London County Council; to the County Councils of Essex, Hertfordshire, Kent, Middlesex, and Surrey; to the Mayor and Commonalty and Citizens of the City of London and to the Mayor, Aldermen, and Commons of the said City in Common Council assembled; to the councils of the several Metropolitan Boroughs; to the Mayor, Aldermen, and Burgesses of the Borough of West Ham; to the urban district councils of East Ham, Leyton, Tottenham, Walthamstow, and Willesden; to the Conservators of the River Thames; to the Lee Conservancy Board; to the several councils grouped as constituent authorities under the Metropolis Water Act, 1902, for the appointment of members of the Metropolitan Water Board; to Almeric William FitzRoy, Esq., Commander of the Royal Victorian Order, Clerk in Ordinary of His Majesty's Most Honourable Privy Council; and to all others whom it may concern.

[After referring to various provisions of the Act the Order continues:—]

Now, therefore, we, the Local Government Board, in pursuance of the hereinbefore recited powers and of all other powers given to us in that behalf do hereby order as follows:—

Article I.—The first meeting of the Water Board shall be held at the Council Chamber of the Privy Council on Thursday, April 2nd, 1903, at 3 o'clock in the afternoon.

Article II.—At the first meeting of the Water Board, Almeric William FitzRoy, Commander of the Royal Victorian Order, Clerk in Ordinary of His Majesty's Most Honourable Privy Council, or, in the absence of the said Almeric William FitzRoy, a person appointed for the purpose by us, shall take the chair and shall preside until a temporary chairman is appointed in pursuance of this Order, but shall not, while presiding in pursuance of this article, be entitled to vote.

Article III.—1. The first business at the first meeting of the Water Board shall be the appointment of a person to act as temporary chairman. 2. The temporary chairman shall

take the chair as soon as he is appointed and shall thereafter preside at the first meeting of the Water Board and at any meeting held by adjournment from the first meeting. But if at the first meeting or at any meeting held by adjournment from the first meeting the chairman or vice-chairman is appointed and is present the temporary chairman shall immediately after the appointment vacate the chair, which shall thereupon be taken by the chairman or vice-chairman. 3. At their first meeting, or at any meeting held by adjournment from the first meeting, the Water Board shall take into consideration and may, if they think fit, determine the following matters; that is to say: (*a*) the question whether any and, if so, what salaries shall be assigned to the offices of chairman and vice-chairman; and (*b*) the appointment of persons to the offices of chairman and vice-chairman. 4. At their first meeting, or at any meeting held by adjournment from their first meeting, the Water Board may, if they think fit, appoint a person to act temporarily as clerk of the Water Board until the clerk of the Water Board is appointed. 5. At their first meeting the Water Board shall determine whether the next meeting shall or shall not be held by adjournment from the first meeting, and in either case they shall fix the time and place for the next meeting and may make any necessary regulations for the notification and convening of that meeting and for the proceedings and business to be transacted at the meeting. 6. Subject as aforesaid, the Water Board may at their first meeting transact such business as they may think necessary.

Article IV.—1. As between two persons who receive an equal number of votes upon any appointment to be made in pursuance of this Order to the post of temporary chairman priority shall be determined by lot. 2. As between two persons who receive an equal number of votes, in the case of the first appointment either to the office of chairman of the Water Board or to the office of vice-chairman of the Water Board, if that appointment be made at the first meeting of the Water Board, or at any meeting held by adjournment from the first meeting, the presiding chairman shall have a casting vote.

Article V.—In the case of the first meeting of the Water Board the said Almeric William FitzRoy shall appoint such person as he may think fit to record the proceedings of the Water Board at that meeting.

The following is the list of the members of the Metropolitan Water Board:—Ernest Avern, Fulham borough council; Charles Edmund Baker, Beckenham, Bromley, Chislehurst, Penge, Bexley, Dartford, Erith, and Footscray urban district councils; Edward Broughton Barnard, Hertfordshire county council; R. Melville Beachcroft, London County Council; Ion Hamilton Benn, Greenwich borough council; Henry William Bradford, Westminster city council; John Henry Brass, Chelsea borough council; John Burns, M.P., London County Council; William Burrell, Lewisham borough council; Charles Burt, Surrey county council; Henry Burt, Hornsey and Wood Green urban district councils; Henry Joseph Butter, Woolwich borough council; Thomas Chamberlen, Hammersmith borough council; Henry Clarke, London County Council; Lieutenant-Colonel Charles Frederick Colvile, Kensington borough council; E. A. Cornwall, London County Council; George John Courthope, Kent county council; Richard Benyon Croft, Lee Conservancy; James Arthur Dawes, Southwark borough council; W. H. Dickinson, London County Council; Charles Fitzroy Doll, Holborn borough council; George Samuel Elliott, Islington borough council; John Glass, Stoke Newington borough council; John Harry Sanders, Edmonton, Enfield, and Southgate urban district councils; Lord Sandhurst, London County Council; Henry Taylor Sawell, Shoreditch borough council; Sir Charles Scotter, Kingston town council and East and West Molesey, Esher and the Dittons, Ham, Surbiton, Barnes, the Maldens and Coombe, and Wimbledon urban district councils; William Richard Smith, Deptford borough council; Leslie William Spratt, West Ham town council; Joseph Thornley, St. Pancras borough council; Augustus Hall Tozer, Buckhurst Hill, Chingford, Loughton, Waltham, Holy Cross, Wanstead, and Woodford urban district councils; Henry Ward, London County Council; William Watts, Battersea borough council; Lord Welby, London County Council; Edward White, London County Council; Peter Alexander White, Poplar borough council; J. W. Whiter, Hackney borough council; Charles Thomas Wilkinson, Walthamstow urban district council; and T. McKinnon Wood, London County Council.

THE STATISTICAL REPORT OF THE HEALTH OF THE NAVY FOR 1901.

FROM the summary given in the report of the statistical sick returns for the total force serving afloat (amounting to 98,410) we learn that in this respect the year 1901 may be regarded as very satisfactory. Notwithstanding that there was an increase of *personnel* of 2580 as compared with the previous year there was a reduction under all three headings of cases, invalidings, and deaths. It has to be remembered, however, that the conditions in 1900 were somewhat exceptional and that 74 of the deaths in that year were from wounds in action, while in 1901 there were no such cases returned.

The aggregate number of cases of disease and injury recorded in the year 1901 furnishes a ratio of 853·83 per 1000, which shows a decrease of 28·46 per 1000 as compared with the ratio for 1900, and of 36·87 when contrasted with the average of the last four years. These figures compare favourably with the returns for 1899, in which year the case ratio was the lowest recorded since 1856, when these reports were first published in their present form. The ratio of cases per 1000 of force shows a reduction on the East Indies, China, and Australia Stations, and in the irregular force, the China Station showing the substantial reduction of 363·1 per 1000. The invaliding ratio of the total force—viz., 31·58 per 1000—shows a decrease of 4·25 as compared with 1900, but an increase of 0·51 in comparison with the average for the last four years. The highest invaliding rate was on the Mediterranean Station. As regards the death-rate the ratio per 1000 was 5·34, showing a decrease of 1·93 per 1000 compared with 1900 and of 0·36 when contrasted with the last four years' ratio. The highest death-rate appears on the Cape of Good Hope and West Coast of Africa Station—viz., 7·9 per 1000. Next in order come the China Station (6·32), home (5·6), and Australia (5·46). The lowest mortality was in the irregular force—viz., 2·66.

The prevalence of, and mortality from, enteric fever and dysentery have, the report tells us, greatly declined since 1900. Four cases of plague with one death and 12 cases of yellow fever with two deaths are returned in 1901, but none of cholera in that year. Among the general diseases we notice that in 1901 there were 208 entries for enteric fever with 38 invalidings and 35 deaths, as compared with 464 cases, 98 invalidings, and 124 deaths in the previous year. There were 287 cases of Mediterranean fever; and in connexion with this disease it may be well to call attention here to two very excellent and exhaustive reports of research work on that form of fever which are published in the appendix and are well worth reading.

The report of the health of the navy being almost entirely statistical does not readily lend itself to the purpose of review and comment, but we may say that in the text of the remarks accompanying the statistical tables and describing the health and prevalent diseases of the various naval stations the reader will find a good deal of useful and interesting information. To refer to some of these we may point to the brief remarks on the cases of cerebro-spinal fever on board the training ship for boys at p. 30, to the paragraphs relating to enteric and Mediterranean fevers at pp. 32 and 33, and on malarial fever and yellow fever at pp. 35, 38, and 41, and to the section on the China station at p. 47 *et seq.* We have already called attention to the articles on research work in regard to Mediterranean fever in the appendix to the report and to these we may add the paper containing some very interesting notes on a case of actinomycosis in the same section of the volume.

THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN ordinary meeting of the Council was held on March 12th, the President, Sir HENRY G. HOWSE, being in the chair.

A report from the Laboratories Committee was received. It stated that during the last three months 8175 doses of diphtheria antitoxin, each containing 3000 units, had been supplied to the hospitals of the Metropolitan Asylums Board,

making a total of 24,525,000 units, and that during the quarter further batches of antitoxin supplied by Messrs. Parke, Davis, and Co. had been tested in the laboratory and a certificate granted showing its strength, sterility, and freedom from excess of antiseptic.

The Council elected as a member of the board of examiners in dental surgery Mr. William A. Maggs, M.R.C.S., L.D.S. Eng., dental surgeon and lecturer on dental anatomy and physiology at Guy's Hospital.

Mr. A. PEARCE GOULD was re-elected a representative of the College upon the Senate of the University of London for four years.

The Senior VICE-PRESIDENT reported the delivery of the Hunterian Oration by the President, Sir Henry Howse, and the best thanks of the Council were given to the President for his oration and he was requested to publish it.

The PRESIDENT reported that at the Hunterian dinner on Feb. 14th, Field-Marshal Earl Roberts was admitted to the Honorary Fellowship of the College.

AN IMPROVED COAL-TAR DISINFECTANT.

WE have received from Dr. E. Klein an account of a series of experiments undertaken with the "Jeyes' Special Fluid."

The experiments were of the following kinds, viz.:—I. Experiments to test the germicidal action of the fluid on staphylococcus pyogenes aureus in various dilutions and after varying periods of exposure of the microbes to the fluid. II. Experiments to test the germicidal power of Jeyes' Special Fluid in various dilutions on tuberculous sputum, the time of action being 24 hours and the microbe materials having been applied to the surface of wood.

Dr. Klein's report, the results of which he rightly considers important and of considerable medical interest, runs as follows:—

"The staphylococcus pyogenes aureus, as is well known, is the chief microbe found in most purulent inflammations and on account of its wide distribution is an important microbe both in medical and surgical practice; it is at the same time a microbe of considerable power of resistance to influences, retaining vitality under many adverse conditions under which other microbes—in fact most non-sporing microbes, pathogenic as well as non-pathogenic—succumb. Provided the staphylococcus pyogenes aureus is derived from an active and recent culture, growing under ordinary favourable conditions, its resisting power to a disinfectant does for the above reasons represent a valuable index of the power of the disinfectant. The bacillus tuberculosis occurring abundantly in tubercular sputum (derived from the lung of a consumptive patient) is known by inoculation into guinea-pigs to be infallibly productive of disseminated tubercular deposits in various viscera. The tubercular sputum derived from a consumptive patient is admitted to be one of the chief means by which tuberculous infection in man is carried out and therefore the disinfection of the tubercular sputum deserves always careful attention.

I proceed now to describe the experiments in detail—viz.:

Series I. Experiments with staphylococcus pyogenes aureus. In the experiments to be described in this series a 24-hours' culture of the microbe, grown on the slanting surface of alkaline nutrient agar at 37° C., was used in this manner: A particle of the growth is taken up with a platinum needle and distributed in a few drops of sterile water (owing to the composition of Jeyes' Special Fluid the emulsion should not be made with salt solution) so as to form a uniform turbid emulsion.

Of a particular dilution of the Jeyes' Special Fluid one to two cubic centimetres are poured into a sterile test tube; to this is added the emulsion of the microbe just mentioned and the whole well shaken. After the lapse of the required time a loopful of the mixture is taken out and with it the slanting surface of the nutrient agar is inoculated; similarly a loopful of the mixture is transferred to nutrient alkaline bouillon. Both tubes (agar and bouillon) are then incubated at 37° C. and the result watched. The addition of a loopful of the dilution of the disinfectant does not render the nutritive media unsuitable for the development and growth of the microbe as was found in those instances in which the culture test was positive—i.e., in which subsequent growth of the medicated microbes did occur. The number of microbes in the emulsion that has been added in all instances to the 1–2 cubic centimetres of the dilution of Jeyes' Special Fluid is so great that the single loopful actually used yielded in a control agar plate so great a number of the colonies as to be uncountable. It follows from this that the tests were of a severe nature, inasmuch as a comparatively large number of the microbes were subjected to the action of a comparatively small amount of the disinfecting fluid.

The following table (A) explains without further description the results obtained; it may be added, however, that the sign + means in general growth; − no growth in the culture tubes inoculated with a loopful of the mixture (disinfectant plus microbe) after exposure.

TABLE A.—*Result of Cultivation after Exposure of Staphylococcus Pyogenes Aureus to Dilutions of Jeyes' Special Fluid.*

Nature of dilution.	5 minutes.		10 minutes.		15 minutes.	
	Broth.	Agar.	Broth.	Agar.	Broth.	Agar.
1 : 300	−	−	−	−	−	−
1 : 400	−	−	−	−	−	−
1 : 500	+	+	+	+	+	+

These experiments were repeated with the same results. From this it follows that a dilution of 1 in 400 is a complete disinfectant for staphylococcus pyogenes aureus in five minutes' exposure.

Series II.—In this series the sputum (expectoration) of a person affected with pulmonary tuberculosis was used. Microscopic examination showed that the sputum contained an abundance of the bacilli of tuberculosis. This sputum was applied to the surface of wood and for control on a piece of paper. It took 48 hours for the sputum to dry. The wood was then placed into the solution of Jeyes' Special Fluid and left there for 24 hours. After this time the sputum, now swollen up into a voluminous jelly-like mass, was scraped off from the wood and injected subcutaneously into one guinea-pig. At the same time the dried sputum was scraped off from the control paper, distributed in a small quantity of sterile saline solution and injected subcutaneously into the control guinea-pig. Four weeks later the animals were killed and a post-mortem examination was made in order to ascertain whether the glands at or near the seat of inoculation and the abdominal and thoracic viscera contained deposits with tubercle bacilli in them. The control guinea-pig just named showed on post-mortem examination the typical appearances of tuberculosis both locally and viscerally with the characteristic tubercle bacilli in the tubercular deposits, thus proving that the original tubercular sputum was of the normal virulence.

Table B shows the result of the experiments made on guinea-pigs with the sputum after its treatment for 24 hours with Jeyes' Special Fuid on wood. The sign + means tuberculous deposits were found in the inoculated animals and the sign − means the animals remained unaffected.

TABLE B.

Nature of dilution.	Time of exposure.	Result of inoculation.
1 : 500	24 hours.	−
1 : 600	,,	−
1 : 700	,,	−
1 : 800	,,	−
1 : 900	,,	+

From these experiments it follows, then, that the virulent tubercle bacilli deposited and dried on wood became completely disinfected by solutions of Jeyes' Special Fluid up to 1 in 800, time of exposure 24 hours.

(Signed) E. KLEIN.

St. Bartholomew's Hospital, London, E.C."

Looking Back.

FROM

THE LANCET, *SATURDAY*, MARCH 19, 1825.

THE STOMACH-PUMP.

An impression very generally prevails, that the above instrument is of recent invention, and this erroneous belief has arisen from its not having been generally known until within the last eighteen months; in fact the public, previous to that period, were entirely unacquainted with it, and by far the greater portion of the medical profession in equal ignorance of its existence; and had it not been for the publicity which it received through the pages of THE LANCET, in all probability even to the present hour it would have remained a dead letter, as it had been for the *one hundred and twenty-five years* after its discovery! Several surgeons and instrument-makers have, within the last four or five years, laid claim to the merit of the invention; a statement of facts contained in a letter addressed to us by Mr. ALCOCK, an eminent surgeon, in Dec. 1823, clearly shows to whom that honour is due, which statement we will here re-insert for the information of those of our numerous friends who did not at that period peruse our pages.

Boerhaave proposed the use of the flexible tube passed into the stomach; that which Dupuytren and Renault perfected. Boerhaave published his proposal in the year 1698.

Renault's Dissertation, containing the description of the perfected instrument, in the year 1803.

1814.—Orfila's republication of Renault's description and experiments.

1818.—Orfila's work was translated into English and published.

1822.—Mr. Jukes's observations and experiments published in the *Gazette of Health*; and, subsequently, in the *Medical Repository*, and *London Medical and Physical Journal*.

1822.—Mr. Bush's communication, published in the *Medical and Physical Journal*.

Thus it appears that the instrument was suggested one hundred and twenty-five years ago, that an account of it was subsequently published at various intervals, and that all the leading journals of *the day*, in the year 1822, published a description of it, and vainly attempted to do that which the influence of THE LANCET was enabled to accomplish by a single notice, viz. cause it to be universally known, and as universally adopted by the medical profession. To Boerhaave, then, is due the credit of having discovered THE STOMACH PUMP, and to THE LANCET the greater credit of having brought it into general use.[1]

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 8846 births and 4977 deaths were registered during the week ending March 14th. The annual rate of mortality in these towns, which had been 16·6 per 1000 in the two preceding weeks, increased last week to 17·2 per 1000. In London the death-rate was 16·3 per 1000, while it averaged 17·6 per 1000 in the 75 other large towns. The lowest death-rates in these towns were 6·3 in Ipswich, 7·3 in Hornsey, 8·0 in East Ham, 8·3 in Walthamstow, 9·3 in West Hartlepool, 9·5 in Grimsby, 9·7 in Leyton, 11·0 in Warrington, and 11·5 in Barrow-in-Furness; the highest rates were 21·2 in Stockport, 21·4 in Huddersfield, 22·3 in Hanley and in Blackburn, 22·6in Manchester, 22·8 in Liverpool, 24·1 in Burnley, 24·6 in Swansea, and 27·7 in Wigan. The 4790 deaths in these towns last week included 483 which were referred to the principal infectious diseases, against 452, 452, and 501 in the three preceding weeks; of these 501 deaths 142 resulted from measles, 118 from whooping-cough, 68 from diphtheria, 63 from diarrhœa, 48 from scarlet fever, 26 from "fever" (principally enteric), and 14 from small-pox. In Willesden, Bournemouth, Northampton, Devonport, King's Norton, Grimsby, Middlesborough, West Hartlepool, Sunderland, and seven other smaller towns no death from any of the principal infectious diseases was registered last week; the highest death-rates from these diseases were recorded in Croydon, Tottenham, West Ham, Hanley, Wigan, South Shields, and Swansea. The greatest proportional mortality from measles occurred in Croydon, Tottenham, Walthamstow, Wigan, Manchester, Salford, Hull, and Swansea; from scarlet fever in Hanley, Bolton, and Oldham; from diphtheria in Hanley, West Bromwich, Stockton-on-Tees, and Swansea; from whooping-cough in Croydon, Hornsey, West Ham, Reading, Hanley, Stockton, Wallasey, and Preston; and from diarrhœa in Oldham and South Shields. The mortality from "fever" showed no marked excess in any of the large towns. Of the 14 fatal cases of small-pox registered in these towns last week, seven belonged to Liverpool, and one each to Birmingham, Leicester, Birkenhead, Manchester, Rochdale, Burnley, and Leeds. The number of small-pox cases under treatment in the Metropolitan Asylums hospitals, which had been eight, five, and six in the three preceding weeks, had risen again to seven at the end of last week; two new cases were admitted during the week, against seven, one, and two in the three preceding weeks. The numbers of scarlet fever patients in these hospitals and in the London Fever Hospital on Saturday, March 14th, was 1798, against numbers declining from 2528 to 1791 on the 11 preceding Saturdays; 231 new cases were admitted during the week, against 205, 197, and 193 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 274, 271, and 251 in the three preceding weeks, rose again last week to 258, but were 293 below the corrected average number. Influenza was returned as the primary cause of 20 deaths in London last week, against 25, 15, and 31 in the three preceding weeks. The causes of 62, or 1·3 per cent., of the deaths in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Leicester, Nottingham, Salford, Bradford, Leeds, Newcastle-on-Tyne, and 45 other smaller towns; the largest proportions of uncertified deaths were registered in Northampton, Hanley, Birmingham, Liverpool, and Sheffield.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 18·1, 17·7, and 18·5 per 1000 in the three preceding weeks, rose again to 19·7, per 1000 during the week ending March 14th, and was 2·5 per 1000 in excess of the mean rate during the same period in the 76 large English towns. Among these Scotch towns the death-rates ranged from 18·0 in Greenock and 18·3 in Leith to 24·3 in Dundee and 27·9 in Perth. The 645 deaths in these towns included 28 which resulted from whooping-cough, 15 from measles, 12 from diarrhœa, five from diphtheria, four from scarlet fever, and three from "fever," but not one from small-pox. In all 67 deaths were referred to these principal infectious diseases last week, against 76, 59, and 75, in the three preceding weeks. These 67 deaths were equal to an annual rate of 2·0 per 1000, which was 0·3 per 1000 above the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of whooping-cough, which had been 23 and 32 in the two preceding weeks, declined again last week to 28, of which 16 occurred in Glasgow, eight in Edinburgh, and two in Dundee. The deaths from measles, which had been 12, nine, and 15 in the three preceding weeks, were again 15 last week, and included seven in Aberdeen, five in Edinburgh, and two in Leith. The fatal cases of diarrhœa, which had been 18, 13, and 21 in the three preceding weeks, declined again last week to 12, of which four were registered in Glasgow, three in Dundee, and two in Greenock. The deaths from diphtheria, which had been five, six, and one in the three preceding weeks, rose again to five last week and included four in Glasgow. The fatal cases of scarlet fever, which had been seven, five, and four in the three preceding weeks, were again four last week, and included two in Paisley. The deaths from "fever," which had been two in each of the two preceding weeks, increased last week to three, and were all registered in Glasgow. The deaths referred to diseases of the respiratory organs in these towns, which had been 109, 92, and 97 in the three preceding weeks, further rose last week to 117, but were 72 below

[1] The remaining portion of the observations referring to an improved stomach pump and the illustration thereof have not been reproduced.

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING FEBRUARY, 1903.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1903.	NOTIFIED CASES OF INFECTIOUS DISEASE.										
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cholera.	Total.	Annual rate per 1000 persons living.
LONDON	**4,613,812**	**11**	**943**	**743**	**2**	**126**	**3**	**26**	**337**	**—**	**2191**	**6·2**
West Districts.												
Paddington	146,032	—	28	9	—	2	—	—	11	—	50	4·5
Kensington	178,409	—	11	7	—	4	—	—	5	—	27	2·0
Hammersmith	115,303	—	34	21	—	1	—	—	11	—	67	7·5
Fulham	147,780	—	41	30	—	3	—	1	14	—	89	7·9
Chelsea	74,169	—	12	10	—	1	—	1	1	—	25	4·4
City of Westminster	179,052	—	33	13	—	4	1	—	8	—	59	4·3
North Districts.												
St. Marylebone	131,234	—	36	18	—	6	—	—	19	—	79	7·8
Hampstead	85,197	—	12	6	—	2	—	1	4	—	25	3·8
St. Pancras	235,716	—	43	49	—	8	—	1	16	—	117	6·5
Islington	339,137	—	55	44	—	6	1	1	19	—	126	4·8
Stoke Newington	52,069	—	18	3	—	2	—	—	4	—	27	6·8
Hackney	224,082	1	48	59	—	10	—	2	18	—	138	8·0
Central Districts.												
Holborn	57,845	1	15	3	—	3	—	1	6	—	29	6·5
Finsbury	99,717	—	11	27	—	2	—	1	3	—	44	5·8
City of London	24,539	—	6	6	—	1	—	—	—	—	13	6·9
East Districts.												
Shoreditch	117,513	—	18	14	—	5	—	1	8	—	46	5·1
Bethnal Green	130,028	—	17	17	—	1	—	2	19	—	56	5·6
Stepney	302,153	7	46	50	—	16	—	3	27	—	149	6·4
Poplar	169,550	1	19	26	—	1	—	—	12	—	59	4·5
South Districts.												
Southwark	207,369	1	54	46	—	5	—	1	20	—	127	8·0
Bermondsey	129,801	—	35	12	1	6	—	1	7	—	62	6·2
Lambeth	307,711	—	63	32	—	7	1	4	14	—	121	5·1
Battersea	173,422	—	47	36	—	3	—	1	7	—	94	7·1
Wandsworth	249,678	—	74	72	—	7	—	2	27	—	182	9·5
Camberwell	285,562	—	60	42	—	8	—	—	27	—	137	6·7
Deptford	112,537	—	30	24	1	3	—	—	9	—	67	7·8
Greenwich	99,824	—	20	13	—	5	—	2	11	—	51	6·7
Lewisham	136,405	—	33	38	—	3	—	—	4	—	78	7·5
Woolwich	121,478	—	23	16	—	1	—	—	5	—	45	4·8
Port of London	—	—	1	—	—	—	—	—	1	—	2	—

CITIES AND BOROUGHS.	DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.										Deaths from all causes.	Death-rate per 1000 living.	Deaths of Infants under one year to 1000 births.
	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.			
LONDON	**1**	**174**	**31**	**78**	**223**	**—**	**30**	**2**	**92**	**631**	**1·8**	**5848**	**16·5**	**129**
West Districts.														
Paddington	—	—	—	—	9	—	—	—	—	9	0·8	160	14·3	92
Kensington	—	—	—	1	26	—	2	—	1	30	2·2	212	15·5	151
Hammersmith	—	—	1	5	4	—	1	1	4	16	1·8	132	14·9	144
Fulham	—	1	1	4	8	—	2	—	3	19	1·7	156	13·8	116
Chelsea	—	1	—	—	5	—	—	—	3	9	1·6	110	19·3	207
City of Westminster	—	—	—	1	5	—	2	—	3	11	0·8	201	14·6	84
North Districts.														
St. Marylebone	—	1	2	1	6	—	—	—	5	15	1·5	166	16·5	86
Hampstead	—	3	—	1	4	—	1	—	1	10	1·5	70	10·7	125
St. Pancras	—	13	2	6	15	—	1	—	2	39	2·2	340	18·8	143
Islington	—	14	3	11	24	—	2	1	7	62	2·4	414	15·9	135
Stoke Newington	—	4	—	—	3	—	—	—	—	7	1·8	51	12·8	101
Hackney	—	5	—	7	4	—	1	—	5	22	1·3	247	14·4	111
Central Districts.														
Holborn	—	2	—	—	2	—	—	—	1	5	1·1	105	23·7	79
Finsbury	—	2	—	2	7	—	3	—	1	15	2·0	159	20·8	168
City of London	—	1	—	1	—	—	—	—	1	3	1·6	32	17·0	91
East Districts.														
Shoreditch	—	2	1	4	5	—	—	—	1	13	1·4	164	18·2	132
Bethnal Green	—	14	—	2	2	—	1	—	1	20	2·0	196	19·6	140
Stepney	1	19	2	7	14	—	2	—	11	56	2·4	457	19·7	114
Poplar	—	17	1	4	13	—	3	—	—	38	2·9	268	20·6	140
South Districts.														
Southwark	—	11	4	2	12	—	—	—	6	35	2·2	300	18·9	139
Bermondsey	—	7	2	1	1	—	2	—	4	17	1·7	203	20·4	154
Lambeth	—	13	4	4	17	—	2	—	5	45	1·9	397	16·8	112
Battersea	—	4	2	2	8	—	1	—	5	22	1·7	208	15·6	179
Wandsworth	—	2	1	3	14	—	2	—	8	30	1·6	247	12·9	149
Camberwell	—	14	1	4	4	—	1	—	3	27	1·3	333	16·3	136
Deptford	—	8	1	2	5	—	1	—	4	21	2·4	153	17·7	168
Greenwich	—	5	1	—	1	—	—	—	2	9	1·2	100	13·1	111
Lewisham	—	8	2	—	2	—	—	—	1	13	1·2	131	12·5	110
Woolwich	—	3	—	3	3	—	—	—	4	13	1·4	136	14·6	100
Port of London	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

the number in the corresponding period of last year. The causes of 22, or more than 3 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 20·6, 25·9, and 27·8 per 1000 in the three preceding weeks, declined again to 26·6 per 1000 during the week ending March 14th. During the past four weeks the death-rate has averaged 25·2 per 1000, the rates during the same period being 16·7 in London and 17·8 in Edinburgh. The 193 deaths of persons belonging to Dublin registered during the week under notice showed a decline of nine from the number in the preceding week and included 10 which were referred to the principal infectious diseases, against 18, 14, and nine in the three preceding weeks; of these, two resulted from diphtheria, two from whooping-cough, two from "fever," and one each from small-pox, measles, scarlet fever, and diarrhœa. These 10 deaths were equal to an annual rate of 1·4 per 1000, the death-rates last week from the same diseases being 1·8 in London and 2·2 in Edinburgh. The fatal cases of whooping-cough, which had been five and three in the two preceding weeks, further declined last week to two. The deaths from diarrhœa, which had been four and two in the two preceding weeks, further decreased to one last week. The mortality from measles and from scarlet fever corresponded with that in the preceding week, while that from diphtheria and from "fever" showed a slight excess. No fatal case of small pox had been registered in any of the six preceding weeks. The 193 deaths in Dublin last week included 28 of children under one year of age and 48 of persons aged 60 years and upwards; the deaths both of infants and elderly persons showed a decline from the numbers recorded in the preceding week. Eight inquest cases and eight deaths from violence were registered, and 76, or nearly two-fifths, of the deaths occurred in public institutions. The causes of eight, or more than 4 per cent., of the deaths registered in Dublin last week were not certified.

VITAL STATISTICS OF LONDON DURING FEBRUARY, 1903.

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 6·2 per 1000 of the population, estimated at 4,613,812 persons in the middle of the year. In the three preceding months the rates had been 9·1, 7·4, and 6·5 per 1000 respectively. The rates were considerably below the average in Paddington, Kensington, Chelsea, City of Westminster, Hampstead, and Poplar, while they showed the largest excess in Fulham, St. Marylebone, Hackney, Southwark, Wandsworth, and Deptford. The prevalence of small-pox showed a slight decrease from that recorded in the preceding month; of the 11 cases notified during February, seven belonged to Stepney and one each to Hackney, Holborn, Poplar, and Southwark. The Metropolitan Asylums hospitals contained five small-pox patients at the end of February, against 17, 14, and seven at the end of the three preceding months; the weekly admissions averaged three, which was the average weekly number in each of the four preceding months also. The prevalence of scarlet fever showed a slight decline from that recorded in the preceding month; this disease showed the highest proportional prevalence in Hammersmith, Fulham, St. Marylebone, Stoke Newington, Bermondsey, Battersea, and Wandsworth. The number of scarlet fever patients under treatment in the Metropolitan Asylums hospitals, which had been 2705, 2327, and 1980 at the end of the three preceding months, had further declined to 1820 at the end of last month; the weekly admissions averaged 205, against 301, 236, and 212 in the three preceding months. The prevalence of diphtheria showed a slight increase as compared with that in the preceding month; this disease was proportionally most prevalent in Hackney, Finsbury, the City of London, Southwark, Wandsworth, Deptford, and Lewisham. There were 1030 diphtheria patients under treatment in the Metropolitan Asylums hospitals at the end of February, against 1019, 981, and 936 at the end of the three preceding months; the weekly admissions averaged 152 last month, against 157, 136, and 131 in the three preceding months. The prevalence of enteric fever showed a slight decrease from that recorded in the preceding month; the greatest proportional prevalence of this disease occurred in St. Marylebone, Hackney, Holborn, Stepney, Bermondsey, and Greenwich. The number of enteric fever patients in the Metropolitan Asylums hospitals, which had been 339, 210, and 172 at the end of the three preceding months, had further declined to 125 at the end of February; the weekly admissions averaged 13 last month, against 37, 30, and 22 in the three preceding months. Erysipelas was proportionally most prevalent in St. Marylebone, Bethnal Green, Holborn, Wandsworth, Camberwell, and Greenwich. The 26 cases of puerperal fever notified during the month included four in Lambeth, three in Stepney, and two each in Hackney, Bethnal Green, Wandsworth, and Greenwich.

The mortality statistics in the table relate to the deaths of persons actually belonging to the various metropolitan boroughs, the deaths occurring in public institutions having been distributed among the several boroughs in which the deceased persons had previously resided. During the four weeks ending Feb. 28th the deaths of 5848 persons belonging to London were registered, equal to an annual rate of 16·5 per 1000, against 18·2 per 1000 in each of the two preceding months. The lowest death-rates last month in the various metropolitan boroughs were 10·7 in Hampstead, 12·5 in Lewisham, 12·8 in Stoke Newington, 12·9 in Wandsworth, 13·1 in Greenwich, and 13·8 in Fulham; the highest rates were 19·6 in Bethnal Green, 19·7 in Stepney, 20·4 in Bermondsey, 20·6 in Poplar, 20·8 in Finsbury, and 23·7 in Holborn. The 5848 deaths from all causes included 631 which were referred to the principal infectious diseases; of these, one resulted from small-pox, 174 from measles, 31 from scarlet fever, 78 from diphtheria, 223 from whooping-cough, 30 from enteric fever, two from simple continued fever, and 92 from diarrhœa, but not one from typhus fever. The lowest death-rates from these principal infectious diseases were recorded in Paddington, City of Westminster, Hackney, Holborn, Camberwell, Greenwich, and Lewisham; the highest rates were recorded in Kensington, St. Pancras, Islington, Stepney, Poplar, Southwark, and Deptford. The fatal case of small-pox belonged to Stepney. The 174 deaths from measles were slightly in excess of the corrected average number; among the various metropolitan boroughs this disease was proportionally most fatal in Stoke Newington, Bethnal Green, Stepney, Poplar, Deptford, and Lewisham. The 31 fatal cases of scarlet fever were 25 below the average number in the corresponding periods of the ten preceding years; the greatest proportional mortality from this disease occurred in St. Marylebone, Southwark, Bermondsey, Lambeth, and Lewisham. The 78 deaths from diphtheria showed a decline of 96 from the corrected average number; this disease was proportionally most fatal in Hammersmith, Fulham, Islington, Hackney, and Shoreditch. The 223 fatal cases of whooping-cough slightly exceeded the average number in the corresponding periods of the ten preceding years; among the various metropolitan boroughs the greatest proportional mortality from this disease was recorded in Kensington, Chelsea, Islington, Finsbury, and Poplar. The 32 deaths referred to "fever" showed a decline of 14 from the corrected average number; the highest "fever" death-rates last month were recorded in Kensington, Hammersmith, Fulham, Finsbury, Poplar, and Bermondsey. The 92 fatal cases of diarrhœa were 41 in excess of the average number in the corresponding periods of the ten preceding years; among the various metropolitan boroughs this disease was proportionally most fatal in Hammersmith, Chelsea, St. Marylebone, Stepney, Deptford, and Woolwich. In conclusion, it may be stated that the aggregate mortality from these principal infectious diseases in London last month was more than 12 per cent. below the average.

Infant mortality in London during February, measured by the proportion of deaths among children under one year of age, was equal to 129 per 1000. The lowest rates of infant mortality were recorded in Paddington, City of Westminster, St. Marylebone, Holborn, City of London, and Woolwich; and the highest rates in Kensington, Chelsea, Finsbury, Bermondsey, Battersea, and Deptford.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Surgeon H. H. Gill to the *Sirius*.

The appointment of Surgeon E. A. Shaw to the *Sirius* is cancelled.

Staff Surgeon D. J. P. McNabb succeeds Staff Surgeon E. R. D. Fasken at the Royal Naval Hospital, Stonehouse.

ROYAL ARMY MEDICAL CORPS.

Captain E. W. Slayter has embarked for India. Lieutenant-Colonel H. E. R. James, the Commandant and Director of Studies at the Medical Staff College, is to have the rank and draw the pay and allowance of a Colonel R.A.M.C.

INDIAN MEDICAL SERVICE.

Lieutenant-Colonel T. S. Weir, Principal Medical Officer of the Quetta District, proceeds to Obbia to take up the appointment of Principal Medical Officer with the Somaliland Force.

IMPERIAL YEOMANRY.

Herts: Surgeon-Major L. Drage resigns his commission. Dated March 14th, 1903.

VOLUNTEER CORPS.

Royal Garrison Artillery (Volunteers): 2nd Kent: Surgeon-Lieutenant-Colonel F. Smith resigns his commission, with permission to retain his rank and to wear the uniform of the corps on retirement. Dated March 14th, 1903. 1st East Riding of Yorkshire: Robert Athelstan Draper to be Surgeon-Lieutenant. Dated March 14th, 1903. *Rifle:* 3rd (Duke of Connaught's Own) Volunteer Battalion the Hampshire Regiment: Surgeon-Captain C. S. Ticehurst resigns his commission and is granted the honorary rank of Surgeon-Major, with permission to wear the uniform of the battalion on retirement. Dated March 14th, 1903. 4th (Perthshire) Volunteer Battalion the Black Watch (Royal Highlanders): Surgeon-Lieutenant W. Haldane resigns his commission, with permission to retain his rank and to wear the uniform of the battalion on retirement. Dated March 14th, 1903. 3rd Volunteer Battalion the Essex Regiment: Supernumerary Surgeon-Lieutenant D. Mowat to be Surgeon-Captain and to remain Supernumerary. Dated March 14th, 1903. 19th Middlesex (Bloomsbury): Supernumerary Surgeon-Lieutenant J. G. Fraser to be Surgeon-Captain and to remain Supernumerary. Dated March 3rd, 1903.

THE FRENCH ARMY.

As our readers are aware, the unsatisfactory state of health of the French army as shown by its heavy death-rate has been attracting a good deal of attention of late. A long debate took place quite recently in the Senate concerning the sanitary condition of the French army, in the course of which M. Clémenceau dwelt upon the fact that, whereas the general death-rate in Germany was about the same as that of France, the annual rate of mortality in the French army was double that of the German army. He thought that it was time that parliament insisted upon the introduction of reforms into the sanitary, medical, and other services of the army. Several other speakers took part in the debate and General André replied. He indicated a number of reforms which he proposed to introduce. These were chiefly of a sanitary nature or concerned the treatment of sick men in barracks. The chiefs of the health service, however, would in the future be able to correspond directly with the Minister. Eventually an order of the day was passed urging on the Minister of War the necessity of the greatest vigilance being shown in the choice of men at the moment of recruiting, and, taking note of his undertakings, it invited him to pursue with the greatest rigour those measures having for their object the improvement of the sanitary condition of the army.

REFORM IN THE ARMY MEDICAL SERVICE.

The *Broad Arrow* of March 14th says: "The resuscitation of the Army Medical Service is a matter on which Mr. Brodrick is to be congratulated. No doubt the improvement is mainly due to the encouragement and support which the profession has given to Mr. Brodrick's policy. But he has approached the question in an open-minded and open-handed manner and this has been recognised and responded to. The Nursing Service has not yet been fully reconstituted, and the employment of ladies as departmental officials is not yet—to speak plainly—an assured success; but the authorities—be they men or women—have time on hand, and no doubt a satisfactory organisation of the nursing establishment will ultimately result."

DEATHS IN THE SERVICES.

Fleet Surgeon John Linton Palmer (retired) at Rock Park, Cheshire, on March 5th, in his seventy-ninth year. He was appointed surgeon in 1848, fleet surgeon in 1870, and retired in February, 1874.

After presenting medallions and certificates to ambulance students at Batley on March 14th General Sir Redvers Buller paid a high tribute to the value of the ambulance brigades attached to his force during the late war.

Correspondence.

"Audi alteram partem."

REMOVAL OF FOREIGN BODIES FROM THE ŒSOPHAGUS.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of Jan. 3rd, p. 70, there appears an annotation upon this subject specially dealing with the dangers attending the removal of the larger forms of foreign bodies which may become impacted in the œsophagus. Speaking of the difficulties of removal, the writer states that the Roentgen rays serve to locate these bodies, thus affording much help in the extraction; but the full amount of assistance which the x rays can render was not appreciated until the idea occurred that the fluorescent screen could be utilised during the process of extraction; the shadow of the foreign body could be seen and also the shadow of the coin catcher or forceps employed for its extraction. That the x rays can be employed as suggested is quite true and as occasion demanded I have made use of this method for the last four or five years. Apart, moreover, from the facilities afforded in the removal of a foreign body, it is useful to see the shadow of the object itself at the very time of operation. The first case of a coin seen and photographed by means of the x rays was reported by me early in 1896 and the advantage of being able to see the coin at the time of operation was impressed upon me then, because the first attempt at removal by one of my colleagues failed and the next photograph taken showed that the coin was no longer in the position in which it had been originally seen.

Of the valuable aid, therefore, as pointed out in the annotation referred to which the x rays afford in such cases there can be little doubt, particularly nowadays when we have apparatus at our command powerful enough for most cases, but inasmuch as difficulties and dangers are constantly arising during the extraction of foreign bodies it is well to remind your readers also that our armamentarium has, in addition to the x rays, been greatly enriched of late years by the different instruments for direct examination. In this country many attribute the methods of direct examination of the œsophagus to Killian (himself the last to make such a claim) whose great work in this way has been the direct examination of the trachea and bronchial tubes. The earliest works of Kussmaul, Semeleder, Stoerk, and Waldenburg led the way for Mackenzie's œsophagoscope, but the introduction of electric incandescent lamps of suitable construction has brought the instrument to its present stage. The three names associated with this work are those of Mikulicz, von Hacker, and Rosenheim, but it is only fair to state that Killian's set of instruments suitable for the examination of the trachea and œsophagus are amongst the most practical in existence. Speaking of the method Killian says that "it may be employed in most patients by practical hands—as a rule local anæsthesia with cocaine is sufficient; in excitable patients and children general narcosis is necessary. By means of œsophagoscopy the gullet may be systematically searched from above downwards; we are able to recognise the exact place and form of the foreign body, its shape, its position, and its relation to the gullet wall; and we can see whether the latter is inflamed or has been injured by previous vain attempts at removal or pushing forward the foreign body. Thus œsophagoscopy will show us everything that may be of importance for the purpose of the removal of a foreign body and it will further

allow us to make an attempt at extraction *under the strict supervision of the eyes.*"

At the last meeting of the British Laryngological Association I showed a photograph of a case illustrative of the value of both methods above referred to. Briefly stated it was as follows. The patient, a girl aged 10 years, was sent to me by her medical attendant on account of a doubtful history of a penny having been swallowed three months previously. Instruments had been passed by others without detection of the coin. The patient began to suffer from ill health and discomfort in the throat and on being placed in front of an x-ray tube, using the fluorescent screen, I immediately and through the clothes saw the shadow of the coin in the commonest situation—viz., at the upper part of the œsophagus—and a stereoscopic photograph was taken. On the following day, under chloroform, the œsophagoscope was passed and with a simple hook the coin was easily and safely removed without the least risk to the tissues. The operation was followed by the usual history of recovery to health after successful extraction.

In July last in association with Professor Killian I had the honour of introducing a discussion upon this subject at the Laryngological Section of the British Medical Association. The general impression of those present was expressed by the President, Dr. Hodgkinson, who in summing up the discussion indicated that in the diagnosis and extraction of foreign bodies in these regions the two methods—that of x rays and that of direct illumination—were complementary to each other; each had its advantages and yet in some instances each could aid the surgeon where the other absolutely failed. Patients can only get full advantage of the most advanced operative procedure when both these methods in addition to many of the older ones are at the disposal of the surgeon.

As an example of what can be accomplished by direct illumination Killian's brilliant instance of successfully removing a vulcanite plate from the gullet at the depth of 35 centimetres may be quoted. In this case he attempted first of all to extract the plate, but the resistance was so great and the risk of injury to the tissues so imminent that he decided if possible to divide the plate. This he succeeded in doing by means of a snare with an incandescent platinum wire and, to use the words above quoted, under the strict supervision of his eyes. Since the introduction of the x rays I have had many, and an ever increasing number of, cases of foreign bodies in the gullet and respiratory tract referred to my wards in the hospital and I now find use for both methods. Such patients should first be examined by means of the fluorescent screen and afterwards a photograph taken if the condition of the patient permit of the time required to do so. It is much to be regretted for many reasons that Mackenzie Davidson's stereoscopic fluorescent screen has not been thoroughly developed for practical purposes. A stereoscopic photograph is to be preferred to the ordinary one inasmuch as it gives us an excellent idea of the position and the relation of the foreign body to the surrounding parts. It may be noted here that all attempts at instrumentation in the first instance may now be set aside unless in exceptional instances where it may be desirable for special reasons—say, of measurement—to make use of the probe. Occasionally it may also be of advantage to pass an electric probe such as I described at the above-mentioned discussion—that is, if the foreign body be a metallic one. Having commanded all available information as to the situation and nature of the foreign body, its relation to the surrounding parts, the history, &c., the surgeon may select the instrument which he considers most suitable for removing the body, but all the others should be at hand. If the operator, after considering all the points, elects to try to remove the foreign body by means of the x rays, using the fluorescent screen, there can be no doubt that he will find them of advantage, especially if he should take the precaution of operating in a room which may be thoroughly darkened if necessary (the light of the tube itself also being excluded) and with a diaphragm of a dense material placed between the source of the rays and the patient. These precautions apply equally whether the patient is sitting upright or lying on a table. This method, moreover, has the advantage of being less troublesome to the patient than the passage of the œsophagoscope. On the other hand, notwithstanding the difficulties of œsophagoscopy, the trouble to the patient, or the necessity of narcosis sometimes, too much consideration must not be paid to these. There can be no question of the supreme advantage of actually being able to touch, to examine, and to extract under direct illumination. Serious risks to the tissues in the extraction of foreign bodies are always present and in cases where there is reason to believe that there has already been injury either during the act of swallowing or subsequently the greatest care is necessary. It is probably in such cases that œsophagoscopy will offer the greatest advantages. But Killian goes further and states that if one sees that the wall of the œsophagus has been deeply injured extraction should not be attempted—that is to say, in these circumstances he limits his instruments to purposes of diagnosis—rather recommending early œsophagotomy as it is easier to locate the injured parts while the foreign body is still fixed in the walls. No doubt the passage of such instruments into the œsophagus and trachea is attended with difficulties and requires practice, and it is only within late years that the methods became practical. These facts, no doubt, account for the hitherto limited use of the œsophagoscope in this country at least, but after the results already recorded by many it is reasonable to expect that it will be more frequently used in the future.

I am, Sirs, yours faithfully,

JOHN MACINTYRE, M.B., C.M. Glasg., F.R.S. Edin., F.R.M.S.,
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March 16th, 1903.

RECENT ACTS AFFECTING THE COMPENSATION OF WORKMEN FOR INJURY.

To the Editors of THE LANCET.

SIRS,—May I, through your columns, direct the attention of the profession to the working of the Workmen's Compensation Acts and to the effect of the various regulations of the insurance companies (to which the legal responsibilities of the employers are, in most cases, now transferred) on the immediate treatment of injuries and the payment of surgeons for carrying it out. Formerly, when called in to accidents occurring at neighbouring works my account was rendered to, and paid by, the employers without question. Of recent years things have changed. In many cases the men, if injured, were still directed to go or to be taken to me; the accounts were too frequently, however, repudiated by the firms and I was referred to the injured men for payment, although sometimes they had been subsequently taken to a hospital or had no permanent address. In one case I received a cheque for attending on a workman who was *not* insured, though for the remainder of the account, which was for attending an insured man brought to me in precisely similar circumstances, I was referred to the patient, who, indeed, paid me without application on my part, which I refused to make to the surprise of his superiors who said that they knew the man would pay and affected to misunderstand why I would not, by rendering the account to him, accept his liability instead of theirs. In another case, although the foreman told the injured man to come to me and had daily certificates, the disability did not last 14 days; hence, no compensation was forthcoming from the insurance company and the firm refused me payment, alleging that the foreman was not authorised to ask for the certificates and that the man was liable for the attendance; they did not know his address and I had only that of the firm he had worked for. This very firm, a large employer of labour, undertaking huge Government contracts, after I had declined on account of the previous case to go to their works again without a written order from the head office or a responsible servant, actually removed a man with a badly smashed thigh to a hospital in a hansom cab without any apparatus for steadying the fragments after keeping him for nearly two hours on the ground (he had fallen 20 feet and his face was terribly contused and wounded also) rather than themselves call a surgeon in face of the insurance company's request *not* to summon one: result, three and a half inches shortening of the femur, which I measured myself when removing the plaster case in which he was discharged from the hospital. The employing firm told me in a written communication that they had orders from the insurance company in all cases to leave the injured man or his friends to send for professional assistance.

This brings me to the climax. I lately received the

following form, issued, as I am told by the employers, by one of the largest insurance companies, though bearing no name or superscription or anything to indicate its origin and forwarded by the employers through the medium of the injured man :—

I CERTIFY that .....
of ..... is suffering
from ..... that he is totally
disabled from work, that I am of opinion that such disablement is
the direct and evident consequence of an accident to .....
on the ..... day of ....., and that I expect .....
total disablement to continue for ..... weeks from .....

Date .....
Signature .....
Qualifications .....
Address .....

The fee for this certificate (if any) to be paid by the injured person.

This certificate is very precise in its terms, is obviously for the protection of the insurance company, and certainly, involving as it does a possible sum of £300, is, should a dispute arise and the case come into court, fraught with considerable possibilities of professional discredit to any man who carelessly fills it up. The footnote, *implying* that a fee is an imposition, induced me to trouble you with this account of a small portion of my experiences which, I fear, must be multiplied ten thousand times daily up and down the country. The manager of the firm who forwarded it to me and who pay the issuing insurance company an *extra* premium (it, at least, does nothing for nothing) in order that their men may receive pay during the fortnight following injury as well as that prescribed by the Acts, apologised for the form, said, as an expert himself, that he should certainly not sign a document giving a professional opinion without a fee and quite appreciated my objection to doing so ; at the same time he stated that so far as he was concerned it was a necessary preliminary to obtaining the man's money from the insurance company. It is limited liability concerns in association with insurance companies which are (though not always) the chief offenders. The private firms and individual employers of labour are still honest enough to pay for what they require (one firm paid me a guinea last week for a similar certificate) and humane enough to provide, at any rate, skilled first aid and, in many instances, surgical attendance throughout for their unfortunate employés as they did before these Acts were passed. I do not now attend men who are unknown to me except the fee is paid at the time or unless the man is provided with a written order or accompanied by some responsible member of the firm employing him

I trust that some more influential members of the profession will take up the question of this new and considerable tax and legal responsibility sought to be imposed on us by these companies without fee or reward and with, I think, an accompanying insult (*vide* footnote to certificate above). The fee might be graded in proportion to the sum involved, so as not unduly to tax small compensations for trifling injuries, but a fee should certainly be paid in all cases. As it is, the hospitals are now treating many cases which used to come under private surgeons and in many more cases are receiving their patients in a far more highly damaged state than was the case before. I have made quite a lot of bad debts by attending workmen for whom their masters would formerly have willingly paid but who now plead the instructions of the insurance companies to whom they have transferred their obligations as their excuse for omitting to do so. At any rate, these insurance people ought to be made to pay for the certificates they require for their own protection (since they have for a consideration taken over the responsibility of those to whom the facts were known) without the wretched suffering employé, out of wages for a fortnight and on half-pay afterwards, being mulcted in the cost or the surgeon being compelled to grant one gratis. I think, too, that where an accident occurs and the man is unable to obtain efficient first aid the employer should be responsible for any further injury resulting from neglect on his part to provide the same for his servant within a reasonable time.—I am, Sirs, yours faithfully,

WM. J. TOWNSEND BARKER, M.R.C.S Eng., L.R.C.P. Lond., L.S.A., D.P.H. Cantab.,
Late Physician's Assistant, Bristol General Hopital.
Fulham, S.W., March 10th, 1903.

THE RISE OF BLOOD PRESSURE LATER LIFE.

To the Editors of THE LANCET.

SIRS,—May I be allowed a few further remarks on this important subject? It is no little satisfaction to me to find myself arriving at the same conclusion as Sir Richard Douglas Powell in regard to the situation and nature of the resistance in cases of protracted high systemic arterial pressure—i.e., that it is situated in the systemic arterioles and due to their widespread hypertonus ; and I am grateful for his courteous reference to my former letter. I may say in regard to Sir Richard Powell's remarks on the low blood pressure in Addison's disease that I too have been accustomed to associate it with a deficiency in the blood of adrenalin ; and if deficiency of this substance is capable of causing protracted *hypo*tonus, why, it may be asked, should not an excess of it or some other vaso-constrictor be competent to induce a protracted *hyper*tonus?

That vascular resistance is, as Professor T. Clifford Allbutt presumably holds, essentially due to the friction of the blood particles against one another rather than against the vascular walls, there can, I imagine, be little doubt ; and granting this it is evident that, other things being equal, marked alterations in the degree of viscosity of the blood would induce corresponding modifications in resistance ; but my contention is that other things are not likely to remain equal and that given a rise of viscosity so great as to cause a very decided augmentation of resistance, the compensatory action of the vaso-motor system would come into play and lower the resistance to the degree most compatible with the well-being of the organism ; for any uncompensated increase of resistance could only lead to harm by wearing out the heart and arteries without any countervailing good and I cannot think that the organism would self-inflict this purposeless injury when it possesses a readily available means of avoiding it. We know that large quantities of blood may be injected into the vessels of an animal and large quantities withdrawn and yet the blood pressure remain the same, so nicely does the vaso-motor system adjust the capacity and resistance of the arteries to the altered conditions ; and if it is capable of effecting this adjustment to modifications of blood mass, why not also to modifications of blood viscosity? A further argument may be advanced against the hypothesis of augmented viscosity, as we may call it. All are, I believe, agreed that these cases of protracted high pressure involve essentially the systemic arteries, the pulmonary arteries tending to escape. Now, on Professor Allbutt's hypothesis, ought there not to be a proportionate increase of blood pressure in both these systems, seeing that the hyperviscous blood must circulate through each system alike? On the other hand, the limitation of the increased pressure to the systemic arteries finds a ready explanation in the view advanced in my former letters.

In considering how far the capillaries constitute the chief seat of resistance it is very necessary that we should all be agreed as to what precisely we mean by "capillaries." The term does not seem to have quite the same meaning for many of our continental brethren as for most of us on this side of the Channel. By capillaries I mean the non-muscular blood tubes which connect the muscular arterioles with the non-muscular venules. Now it seems to me to be quite incredible that the resistance in these tubes can ever be augmented to a degree equivalent to a rise of 60, 70, 80 Hg mm. of blood pressure in the systemic arteries ; yet these elevations are by no means rare. Such an assumption implies that the pressure would fall to this extent during the passage of the blood through the capillaries—that the blood pressure at the beginning of a capillary system might be 60, 70, 80 Hg mm. greater than at the end of it. What effect this would have upon the delicate capillary vessels, what distortion of them it would cause, how far it would disturb the normal interchange between the intra- and extra-capillary fluids, what havoc it would play with metabolism generally, I forbear to discuss, for the assumption is to me inconceivable. And, again, I would ask, as I have asked in reference to the hypothesis of increased viscosity, if the augmented resistance in the cases in question is situated in the capillaries, ought not pulmonary resistance to increase *pari passu* with systemic, since the capillaries of each system are equally subjected to the influence of the poisoned blood?

The fact that arteriolar aneurysms are common in cases of prolonged high pressure Sir William H. Broadbent regards as

favouring the view that the seat of hyper-resistance is in the capillaries rather than in the arterioles. It must be remembered, however, that local arteriolar dilatations are continually occurring throughout the body and are amply sufficient, in cases of widespread arteriolar hypertonus, to cause considerable local augmentations of intra-arteriolar pressure. It is scarcely necessary to say that in my explanation of prolonged high blood pressure I fully concur with Professor Allbutt's view—in which he has for some years stood alone—to the effect that elevation of blood pressure does not depend directly upon arterio-sclerosis. No degeneration short of a widespread obliterative change in the arterioles, so pronounced as to render a compensatory vaso-dilatation impossible, is in my opinion likely to cause a permanent increase of resistance and I, at least, have never met with such a case.

Dr. William Russell and Dr. H. Oliphant Nicholson are emphatic in their statements that it is quite common to get low blood pressure with arterial hypertonus. I believe that I am stating a mere physiological truism when I say that, except in cases of decided cardiac inadequacy, a general hypertonus of the systemic arterioles necessarily leads to augmentation of the systemic arterial pressure, but Dr. Nicholson at least does not appear to accept this proposition. He refers to cases of hypertonus accompanying "severe abdominal pain, tympanites or any form of shock ..... peritonitis or shock," in which the pressure is frequently low, in spite of "a general arteriole contraction," apparently inferring from the hypertonus of certain superficial arteries, such as the radials, the existence of a general systemic hypertonus of the arterioles. I submit that such an assumption is not warranted. Hypertonus of the radial arteries might conceivably go along with hypotonus of the radial arterioles—though I admit the unlikelihood of this—and it is certainly consistent with a widespread relaxation of deep-seated arterioles. Whenever, with radial hypertonus and a sound heart, the radial pressure is low we should suspect hypotonus of some large vascular area, and it is well known that in all cases of shock there is extreme relaxation of the splanchnic arterioles, causing a rush of blood into the splanchnic veins and a fall of arterial pressure, a fact which sufficiently explains the low radial pressure in the cases just referred to. The object of the hypertonus in areas other than the splanchnic in these cases is, presumably, to keep what little blood there is in the arteries from escaping too rapidly into the veins. Whether with the contraction of the superficial arteries frequently observed in tuberculous meningitis there is a similar relaxation of internal vessels I cannot, of course, say, but I should myself be much more inclined to attribute the low pressure which Dr. Nicholson has observed in these cases to such relaxation than to the only alternative—namely, a primary feebleness of the cardiac beat.

I have suggested that protracted augmentation of arterial pressure has for its object an augmented renal excretion and that to this end there takes place a concomitant augmentation of the intra-renal arterioles. How can one doubt, to take an instance, the urgent necessity in advanced "granular kidney" (in which possibly five-sixths of the original secreting structure have been removed) of a vigorous renal circulation, in order to stave off the on-coming of fatal uræmia—in order "to parry the stoke of death," if I may be permitted Professor Allbutt's graphic figure; and what means so competent to secure this end as the one suggested? Does not the extreme hypertonus so frequently observed in uræmia tell, as plainly as anything can tell, of the brave fight which the vaso-motor system is making against the forces of death? and is it not more rational to regard such hypertonus rather as a manifestation of the many-sided *vis medicatrix* than as an act of suicide?—which it most certainly would be did the intra-renal arterioles share in the hypertonus. Moreover, the increased flow of urine in all but the last stages of granular kidney testifies to the activity of the renal circulation in this affection.

Dr. Nicholson contends that this interpretation is not of universal application and I can well believe that there are exceptions to it. I do not, however, think that puerperal eclampsia with hypertonus can be brought forward as one of them. It is true that, in spite of the hypertonus and increased blood pressure observed in this malady, "the secretion of urine is notably diminished, and as hypertonus and increased blood pressure become more pronounced the urine may be suppressed altogether"; but this suppression does not prove that the intra renal arteries are not dilated—it results, I submit, from a grave perversion (as testified by the occurrence of albuminuria) in the functions of the kidneys, owing to the rush of toxins towards the renal tubules in their mad effort to escape from the body.

In conclusion, Sirs, I trust that I may be permitted to express my deep appreciation of the eloquent and thought-stimulating paper which has evoked this discussion. Though he may not be successful in carrying his audience with him on all points Professor Allbutt will, I doubt not, be more than content if he succeeds in duly impressing upon the younger generation of physicians what are after all the most important words of his paper: "I cannot urge too strongly the perils of neglecting these incipient increases of blood pressure and the importance of educating the finger in the early detection of them." He who misses the lessons to be learnt from a clinical study of blood pressure is a poor physician indeed, for he loses many a valuable opportunity of helping his patients. To the teachings of three men in this department of clinical medicine—Sir William Broadbent, Professor Allbutt, and Dr. George Oliver—I owe a debt which I cannot well exaggerate; and it is pleasant to have an opportunity of recording the fact.

I am, Sirs, yours faithfully,

Wimpole-street, March 8th, 1903. HARRY CAMPBELL.

AN EARLY SYMPTOM OF TYPHOID FEVER.

To the Editors of THE LANCET.

SIRS,—I have noticed in the history of many cases of typhoid fever the presence of an early symptom—viz., a feeling of stiffness of the neck. In some cases it appears before any other symptom during the period of incubation, in others it appears coincidently with malaise and headache. Its presence, as a rule, is only elicited by direct inquiry, no importance having been attached to it. In young children it is frequently shown to be present by signs of pain when the head is turned, as when being washed. While resident medical officer in the Children's Hospital in Liverpool I found that the nurses observed this in many of the cases of early enteric fever. In several cases of enteric fever in adults this symptom has been the only one for three or four days, sometimes combined with sore-throat, before the onset of other symptoms.—I am, Sirs, yours faithfully,

BRUCE C. KELLY, M.B., C.M. Edin., M.R.C.S. Eng., L.R.C.P. Lond.,

Formerly House Physician, Edinburgh Royal Infirmary, and Senior Resident Medical Officer, Hospital for Children, Liverpool.

Wells, Somerset.

THE EFFECTS OF BORIC ACID AS AN INTERNAL MEDICINE.

To the Editors of THE LANCET.

SIRS,—Your annotation in THE LANCET of March 14th, p. 749, on the disturbing effects of boric acid on the digestion of healthy persons and invalids when taken internally is one that I can entirely indorse. Speaking personally it is about the only thing I know of which is capable of giving me indigestion at almost a moment's notice. I have often recognised it in this way when administered in conjunction with milk, butter, potted shrimps, and many other articles of diet. For medicinal purposes I have long discarded it for this reason in appreciable doses. So far back as 1886 I have advocated and largely used in practice a substitute for boric acid which is free from this serious objection and possesses the properties claimed for boric acid whether taken internally as a medicine or used as a lotion for washing out the bladder. As an article of commerce for preserving such foods as I have instanced I believe it has similar advantages. In the chemical world it is known under the name of boracite and is thus described:—

"Boracite, a borate of magnesia with chloride of magnesium, containing when pure 62·5 per cent. of boracic acid (anhydride). It crystallises in the cubic system, often in hemihedral or tetrahedral forms, and is remarkable for being pyro-electric—that is, for exhibiting electrical polarity when exposed to a change of temperature. The mineral is further notable for its anomalous optical properties; thus a ray of light in passing through a crystal of boracite suffers double refraction, contrary to the general rule that crystals belonging to the cubic system are not capable of thus affecting light. The probable explanation of this anomalous behaviour on the part of boracite is beyond the scope of this article. Boracite is usually found in association with deposits of rock salt and gypsum. The mineral occurs crystallised at Lüneburg, in Hanover, and at Stassfurt, near Magdeburg; the latter locality also yields a massive boracite called

stassfurtite."—Ure's Dictionary of Arts, &c., p. 427, seventh edition, 1876.

It is also elsewhere referred to as

"Magnesium borate ($MgBO_2$). Exists native as boracite; usually contains also calcium borate. Has been prepared artificially by Heintz."—Thorpe's Dictionary of Applied Chemistry, third edition, 1894.

From these descriptions it will be seen that it is a salt presenting some very remarkable properties. My attention was first called to it by a paper by Dr. Koehler[1] of Kosten who advocated its employment in cases of uric acid calculi and gravel. I have reason to believe that it has properties which are favourable to the induction of the spontaneous fracture of calculi. Some evidence of this is offered in my recent address at the Egyptian Medical Congress.[2] I have, however, chiefly used it as a steriliser of the urine, as a substitute for boric acid, for the reason already assigned. Patients will take it in sufficient doses for considerable periods without complaining of dyspeptic symptoms and under its action the urine, as in chronic cystitis or pyelitis, will often assume normal properties. There is a reference to its preparation and dose in the last edition (tenth) of Martindale's "Extra-Pharmacopœia" under the designation of "compound powder of boro-citrate of magnesia" (p. 7). In this form it is made up with some sugar. I prefer it to boric acid for washing out the bladder. For the latter purpose I use the boracite without the sugar in the proportion of a teaspoonful or more in a pint of warm water. It is more soluble than boric acid and in some cases of chronic cystitis with alkaline urine the nature of its acidulation renders it more efficacious. In fact, as stated I have for some years past not placed much reliance on boric acid for serious bladder work. Previously boiled water is equally efficacious. I shall be glad to be permitted to make use of this opportunity for offering a few remarks in favour of the substitution of boracite for boric acid and your comments in reference to the latter seemed opportune.

I am, Sirs, yours faithfully,

REGINALD HARRISON.

Lower Berkeley-street, W., March 14th, 1903.

ASEPTIC AND ANTISEPTIC SURGERY.

To the Editors of THE LANCET.

SIRS,—In the interesting address by Mr. W. Watson Cheyne on the above subject, published in THE LANCET of Feb. 7th, p. 347, it is contended that one trained solely in aseptic methods is less able to adapt himself to his surroundings, once he has to practise surgery far from the polished walls of a modern operating theatre. For 15 months I have been engaged in operative work in the Soudan and certainly have not found this to be the case. After all there are many lessons learnt in an aseptic school that may still be followed out. A small portable steriliser is capable of boiling instruments and steaming sufficient absorbent wool swabs and gauze for the most exacting operation. I still, too, wear cotton gloves sterilised along with the gauze. The instrument tray is disinfected by running in a little spirit, which is set on fire and allowed to burn out. In treating tuberculous abscesses I have a tin reservoir wrapped in a towel and boiled in the kitchen. This is brought in immediately before the operation. In abdominal cases sterilised water for wringing out gauze pads and protecting the bowel is brought in in two saucepans. One of these, covered by a towel to prevent the ingress of dust, contains cooled water that had previously been boiled, the other is brought in hot from the kitchen. By this means I am able to mix a sufficient quantity of water in an ordinary pudding basin for use at any time during the course of the operation. I will not occupy more space with further details of technique, but this should suffice to show that one need not necessarily give up all aseptic methods because the walls are of mud and, may be, the floor too. Though there be no tessellated floors or foot-taps to look after there is still some scope for following up the same idea in paying attention to the enamel of all the vessels employed and such like matters. Carbolic towels, of course, must needs be used, but this does not mean that any less care is given to having them carefully washed and boiled after each operation. I certainly think that in a country where dust storms are not uncommon and flies (in summer) swarm in thousands, the use of these and carbolic lotion for the instrument tray probably has its advantage. I do not agree, however, that one trained in an aseptic school is more likely to blunder with chemical methods if forced to have recourse to them. He is taught that in disinfecting the operator's hands, the final use of an antiseptic lotion (when employed) is not intended to kill by a magical and momentary touch all the microbes thereon, but merely to remove mechanically the last traces left from the previous thorough use of soap and water. To be of germicidal value the hands must needs be immersed so long that the skin will be well-nigh turned into leather. Such teaching (right or wrong) imbues one with the importance of thoroughness when employing antiseptics. For instance, my towels are not merely dipped in carbolic lotion but stand immersed for at least an hour before the operation. No doubt the results of careful surgeons by either method are equally good, but the careless man indifferently trained in an antiseptic school has a tendency to think that salvation lies in a perfunctory dip of himself or anything in an antiseptic lotion. Such a man (and I have met him) must surely be responsible for considerable damage.

My own results (as one who with an aseptic training at St. Thomas's Hospital has since had to make shift with mixed methods) perhaps may be of interest. For the purpose of comparison I have taken the radical cure of inguinal hernia. I find that since coming to the Sudan I have operated on exactly 20 cases, all of which have healed by first intention. I have employed Bassini's method, using silkworm gut for the deepest stitches and fine silk for the aponeurosis of the external oblique. The sac has always been tied with silk. In only one instance has there been any trouble with the ligatures. In that case two months after the operation two small bullæ formed in the line of the incision and after producing two silk stitches gave no further trouble. Though I have always used only sterilised gauze with clean but (not sterilised) absorbent wool as a dressing, I am of opinion that in circumstances such as we have in this country dressings permeated with antiseptics should have the advantage. In a well-ordered hospital at home, where the discovery that a dressing has been wetted with urine or has "come through" is promptly made and attended to, the matter is of little moment. But where such is not the case an antiseptic in the wool ought to minimise the danger should there be any delay in changing the dressing.

I am, Sirs, yours faithfully,

A. WEBB JONES, F.R.C.S. Eng.

Wadi Halfa, Sudan, March 14th, 1903.

[1] Berliner Klinische Wochenschrift, Nov. 3rd, 1879.
[2] Brit. Med. Jour., Jan. 17th, 1903.

MIDWIVES FOR THE RURAL POOR.

To the Editors of THE LANCET.

SIRS,—As a result of the conference on March 3rd, which you so kindly reported, an association has been formed to train and to supply midwives for rural districts, either to add to nursing associations already formed or to help very poor parishes unable to support a nurse or midwife without assistance. It is earnestly hoped that many who read this will gladly help in starting this good work, for there must be necessary expense at first in organising, training suitable women, and assisting needy districts. At the same time, every effort will be made to teach the people to help themselves by small subscriptions and payments, as has been found to answer so well in Miss Broadwood's system.

The association will be on a broad basis, including various schemes suitable to different districts, but the advice and help of the local medical man will be sought in every instance and his fee paid when called in. The midwives chosen are to be homely women willing to help the poor mother as much as they consistently can in the cottage. I shall gladly hear from any willing to help or to coöperate in the work of the association.—I am, Sirs, yours faithfully,

JOSEPHINE JOHNSTONE
(For the Committee of the Association).

Bignor Park, Pulborough, Sussex, March 14th, 1903.

COTTAGE HOMES FOR PAUPER CHILDREN.

To the Editors of THE LANCET.

SIRS,—In an annotation in THE LANCET of Feb. 28th, p. 600, you remark that the Hackney and Plymouth boards of guardians have adopted similar methods for

the disposal of their pauper children and you proceed to point out in a sympathetic spirit the advantages of the scattered homes system. With deep regret I have to point out that while the Plymouth board has adopted this system the Hackney board has not. It is true that it has not chosen the worst form of aggregation—the barrack room—but it has chosen the pauper village, with its enormous expense and its serious drawbacks. In spite of the proved success of the method of segregation (or scattered homes) as practised by the boards of guardians of Camberwell and Mile End in London and in Bath, Bristol, and many other places in the country, they have adopted aggregation. The children will still live as a class apart, seeing nobody but officials year after year, leading monotonous lives, making no outside friends—a good deal happier than they would be in an ordinary school, but much less happy than they would be in a scattered home where the children lead the life of ordinary children. The idea is so simple, so easy, that it is amazing that any board of guardians which has the chance to change its system should fail to see it. It has its eyes in the air and does not see what is at its feet. These children have lost their own home or never had one worthy of the name, and the thing required is to find them something as like "home" and as unlike an institution as possible. Children in normal conditions do not require recreation halls, gymnasia, swimming-baths, and all the other costly apparatus of properly equipped institutions, because they are leading a natural life, the life which nature all over the world, among animals as among men, ordains. What they want, and need, is something quite cheap and simple—love—and Poor-law children are just like other children. Their little souls need what institutions cannot give, even though they have "teak staircases" and a "southern aspect."

There are thousands of good women in England who would find a satisfaction to their highest nature—an outlet to latent motherliness—in being the "mother" in a "scattered home." But they would not care to be officers in an institution. A moment's reflection will show the enormous difference between the two positions and some of the consequences of that difference.

I am, Sirs, yours faithfully,

HUGH E. HOARE,
Vice-Chairman, State Children's Association.

Old Broad street, E.C., March 10th, 1903.

THE LARGE INTESTINE AS AN INTERMITTENT SYPHON.

To the Editors of THE LANCET.

SIRS,—I am glad to have even the partial support of so distinguished an authority as Dr. William Ewart. I notice, however, that he quotes from the previous correspondence and not from the original pamphlet. I sent him a copy but no doubt it was submerged in the daily flood of American circulars. He is therefore, I presume, unaware that I proved by experiment that the presence of gas does not affect syphonage provided the combined length of the air-spaces does not exceed the difference between the ascending and descending limbs of a syphon. If, for example, the descending limb is the longer by four inches syphonage will go on with an air space which is under, but not with one which is over, four inches. It is therefore not essential to syphonage that "the transverse colon and its flexures should be filled with an exclusively fluid column." I must confess I was unaware of Dr. Ewart's paper upon the postural treatment of typhoid fever. His method of emptying the overloaded cæcum by gravitation is one to be borne in mind, but it is probably only available when there is intestinal paresis. Syphonage is, of course, impossible with the trunk horizontal.

I was much gratified to see Dr. H. B. Donkin's letter and all the more so that having retired from the profession at a comparatively early age he is able to speak judicially. But he is not quite correct in representing that I deny the existence of peristalsis in the large intestine in man. I think it is very feeble and with the trunk erect quite ineffectual in the ascending colon, but it may be of service in the horizontal position. As I pointed out, the hydraulic construction of the ileo-cæco-colon has an important bearing upon the propulsion of the contents of the large intestine and renders peristalsis less necessary than in the small bowel.

I am, Sirs, yours faithfully,

March 16th, 1903. R. W. LEFTWICH, M.D. Aberd.

THE FOURTEENTH INTERNATIONAL CONGRESS OF MEDICINE, MADRID.

To the Editors of THE LANCET.

SIRS,—I recently wrote to the Royal Mail Steam Packet Company to ask if it was their intention to offer a reduction in the fares to Lisbon for members of the forthcoming International Medical Congress to be held at Madrid next month. I have received the following reply in which they offer an abatement of 25 per cent. from the first-class single or return fares to Lisbon. To many medical men who wish to avoid the long, tedious, overland journey to Madrid this concession should be heartily welcome, as, of course, in this reduction is also included the price of the food during the sea journey to Lisbon.

I am, Sirs, yours faithfully,

March 17th, 1903. W. WOODLEY STOCKER.

[COPY.]

SIR,—With reference to your letter of the 4th instant I am to state that the company will be happy to allow members of the International Medical Congress 25 per cent. abatement from the first-class single or return fare Southampton to Lisbon. It is understood that you will take means to let the members of the Congress know and arrange so that we may know to whom to allow the abatement.

Yours, &c.,
(Signed) C. E. DAVIES,
pro Secretary,
Royal Mail Steam Packet Company.

W. Woodley Stocker, Esq., 287, Willesden-lane, N.W.

CANCER "CURES."

To the Editors of THE LANCET.

SIRS,—I beg to acknowledge your favour and have the right to hope that you will, in future, follow my example and at least acknowledge letters addressed to you. My only answer to your editorial is that it contains many mis-statements, that it is treading close to libel, and that you have not all the evidence *pro* or *con* the high frequency treatment; that its efficacy is not solely in the direction of the "temporary reduction of the size of a tumour," and that many cases of cancer have died of a recurrence of their disease even when healed by the valuable knife, and that shortly. You have perhaps forgotten that I forwarded notes of a case of scirrhus uteri some months ago of which I had no acknowledgment even in your columns.

I am, Sirs, yours faithfully,

E. CLOETE SMITH.

Westbourne-street, W., March 13th, 1903.

ON THE PROBLEM OF GLYCOSURIA AND DIABETES: A SUGGESTION.

To the Editors of THE LANCET.

SIRS,—The very interesting address published in THE LANCET of March 14th, p. 714, with which Dr. W. Hale White opened the debate on Glycosuria and Diabetes at the Chelsea Clinical Society, makes it only increasingly manifest that in the "composite," as distinguished from the "alimentary," form of diabetes, the distinguishing features of which were so ably and fully described by Dr. Pavy in his lectures published in THE LANCET, June 16th (p. 1706), 23rd (p. 1787), and 30th (p. 1863), the disease is still to be classed, unfortunately, as incurable, treatment, even when most rigidly carried out by the absolute exclusion of all carbohydrates from the diet and by the administration of codeia in properly regulated doses, failing to effect any reduction in the amount of sugar excreted.

It would be a happy issue to the debate if it led to a more searching and careful investigation into the cause of the disease. According to Dr. Hale White there appear to be good grounds for frequently associating disease of the pancreas with diabetes, for it is remarkable that so many as 25 per cent. of the fatal cases of diabetes occurring at Guy's Hospital during 14 years should have shown *naked-eye* disease of the pancreas at the necropsies. Such being the case, and from the analogy of the efficacy, for instance, of the thyroid gland in the treatment of cretinism—a disease at one time regarded as incurable—is it unreasonable to suppose that the pancreas of the calf or some other animal, removed fresh, under strict supervision and aseptic methods, and prepared in a manner similar to that in which the thyroid gland is prepared for tabloids, might possibly prove useful in the treatment of diabetes? Dr. Hale White

maintains the fact of having tried *feeding* diabetics on sweetbreads, and of injecting liquor pancreaticus subcutaneously without success, but this treatment is not quite on all fours with the administration of the raw gland.

I am, Sirs, yours faithfully,

March 16th, 1903. RUSTICUS.

THE ORGANISATION OF THE PROFESSION.

(FROM OUR SPECIAL COMMISSIONER.)

The East Glamorgan and Monmouthshire Colliery Surgeons' Medico-Ethical Society.—Rules of Medical Etiquette.—Neglect of the Economical Questions.—Establishment of a Medical Aid Committee and the Exploitation of Medical Officers.

SOME ten years have already elapsed, I was assured, since a medico-ethical society was founded at Pontypridd. Mr. Evan Naunton Davies of Dinas and Mr. Evan Jones of Aberdare were the originators and the society has now 40 members who practise in the Rhondda, Aberdare, and Merthyr districts. By far the greater number of practitioners have joined the organisation. Still there are some exceptions. The full title of this organisation, as already mentioned, is the East Glamorgan and Monmouthshire Colliery Surgeons' Medico-Ethical Society.[1] According to its rules its object is to uphold the interests and to promote the good fellowship of the members of the profession by adopting a code of etiquette deciding questions of custom and courtesy in practice and arranging misunderstandings. The members must be registered practitioners and hold a colliery appointment. In this rule we see the remains of old ideas. Formerly all organisation was specialised just to one particular interest, as, in this case, that of the colliery surgeons. It is only experience that teaches that there is no such thing as an absolutely separate interest. Every interest is linked with some neighbouring interest, which in its turn extends still further, and it is impossible to draw a line in this process of expansion. For instance, in this case, what would be the position of a practitioner in one of the larger towns—Aberdare, or Pontypridd itself—who did not seek to attend colliers but contented himself with the workpeople and tradesmen of the town, would he be outside the movement altogether? If so, he might act against the rules laid down. In Northumberland it was the other way about; it was the town practitioners who commenced to organise at Newcastle; the colliery surgeons subsequently followed their example and finally the two movements, which were distinct at first, amalgamated to form the Northumberland Medical Union. There is still some distance for the South Wales practitioners to travel before they reach this point. Again, there is no trace of an indemnity fund in their rules and the annual subscription is only 10*s.* 6*d.* This will not carry them far if they become involved in a serious struggle. Of course, special levies could be made, but it is well to be at least partially prepared before anything occurs.

The Medico-Ethical Society is governed by a president, a treasurer, two secretaries, and a committee of five, but past presidents are *ex-officio* members of the committee. Every year the two members of the committee who have attended the fewest meetings are not eligible for re-election and a president also is not re-elected if he has been two years in office. Luckily there is no such rule in regard to the secretaries. It may seem advisable and desirable not to allow a society to be always governed by the same persons, but, on the other hand, it is a matter of extreme difficulty to discover administrators and organisers who have at once the capacity, the time, and the desire to serve. Consequently, the fewer rules of this sort the better. In matters of practical administration an organisation should be left to do what is most expedient as the circumstances arise, instead of being fastened down by a lot of petty rules that do not guarantee any important principle but may cause embarrassment, especially in moments of difficulty or emergency. The committee has to arbitrate in disputes and to interpret the code of etiquette and this might involve some very complicated questions. It may meet as often as necessary and must meet at least once a quarter. But this committee is only to judge in disputes voluntarily submitted and when the parties concerned have given a written promise to abide by the decision thus obtained. This is all well in its way but it obviously shuts out precisely the sort of case where the intervention of a representative professional organisation is most needed. If the disputants are so well disciplined that they will give a written agreement to accept the verdict of the committee by far the greatest difficulties have already been overcome. Then there are rules about the discussions at the meetings, that the opening paper shall not take more than half an hour to read, and similar regulations which are all very good for a debating society but which are quite out of place when some crisis has to be dealt with. It is true that for such a circumstance special meetings may be convoked. Nevertheless it is obvious that the framers of the rules did not quite realise the sort of work that such an organisation would have to do unless some other more practical body came forward to take its place.

Looking over the rules and the circumstances it seems to me that this is a deontological society rather than a medical union. It should have been represented at the International Congress of Deontology held in Paris in 1900[2] where its ethical rules would have been highly appreciated. These form the second portion of their general statute-book and are entitled a "Code of Medical Etiquette." The following is the text of the general principles adopted:—

Article 1.—No member shall lower the dignity of the profession by the following or any similar practices:—(*a*) Soliciting private practice, either by public advertisement in the newspapers, by placards, or by the public distribution of circulars, cards, or handbills. (This is not to be interpreted as prohibiting a single announcement of a change of professional residence.) (*b*) Deriving pecuniary profit from the sale of any secret remedy. (*c*) Entering into compact with a druggist to prescribe gratuitously and at the same time receiving a share in the profits arising from the sale of the medicines prescribed. (*d*) Publishing or permitting the publication of cases and operations in non-professional newspapers or journals. (*e*) Shielding unqualified persons in illegal practices.

Article 2.—No member shall belong to, or identify himself with, any professional sect or body whose distinctive name or title implies that its members base their practice on exclusive views of treatment. (This article is not to be so interpreted as to interfere with full liberty of opinion on scientific questions.)

After this there follow rules as to meeting consultants and not keeping either party waiting more than ten minutes and then the text says that—

Precedence in consultation shall be given to the physician or surgeon who is a recognised consulting practitioner; or, where this rule is inapplicable, to the practitioner last called in. In cases where there is a considerable disparity of age the rules as to precedence should be applied with the greatest delicacy and consideration.

Of course, there is a rule to the effect that differences of opinion shall not be divulged if this can possibly be avoided, but when such differences are absolutely irreconcilable then the matter should be frankly and impartially explained and the patient's friends left to decide whether they shall seek a third opinion or adopt any other course. Then there is a rule which applies apparently to medical experts engaged in legal inquiries or to medical officers of health. It says:—

Where it becomes the duty of a practitioner occupying an official position to see and report upon a case of illness or injury it is desirable that he should, as a matter of courtesy, communicate, where practicable, with the practitioner in attendance, so as to give him the option of being present. The practitioner seeing the case officially shall scrupulously avoid interference with, or remarks upon, the treatment that has been adopted.

On reading this the inquiry naturally suggests itself as to whether a medical officer of health would necessarily be a colliery surgeon; and, if not, how far would he follow the rules of a society to which he did not belong. Of more general application to the members themselves are the rules affecting attendance on patients on behalf of another practitioner. It is here stipulated that if a member of the society is to attend to the practice of a professional friend during absence or sickness he shall not charge either the patient or the absent practitioner unless some special arrangement has been made. If no arrangement has been made and an emergency arises the practitioner, after providing for that emergency, must retire in favour of the ordinary medical attendant, but he is entitled to charge the patient for his services. If it be an obstetric emergency the practitioner shall cease attendance when the emergency is provided for or on the arrival of the proper attendant. If, however, the patient has been delivered, then the fee should be shared between the two attendants. The two following rules are somewhat complex, so that I will not attempt to give an abbreviated version:—

A member called upon without previous arrangement to attend a patient during sickness or absence from home of the regular medical adviser shall intimate his wish to cease attendance as soon as the

[1] THE LANCET, March 14th, 1903, p. 761.

[2] THE LANCET, July 28th (p. 275) and August 4th, 1900 (p. 342).

regular adviser is able to take charge of the case and shall be entitled to charge the patient for his services.

When a member is consulted by a patient whom he has previously attended as the officiating friend of another practitioner he may propose a consultation, but shall decline to take charge of the case unless the patient signifies his fixed determination to change his medical attendant.

Nor must a member attend another practitioner's patient unless it be a case of emergency. He must decline to do so when sent for, except in consultation or after the regular medical attendant has been formally notified that his services are no longer desired. If, however, a patient calls at the surgery it is not necessary to inquire if he is under the care of any other practitioner, but should the fact become known then "courtesy may require that the regular medical attendant be informed of the consultation and its results." Finally, there is a rule to the effect that members shall not charge for attending on a practitioner or his family or the near relatives of a deceased practitioner where the cost would naturally fall on the practitioner or his representatives.

Such are the rules and principles of the East Glamorgan and Monmouthshire Colliery Surgeons' Medico-Ethical Society and it will be seen that it is ethical rather than economical considerations that prevail. Nor is this surprising considering that this organisation was founded before the present movement in favour of medical unions had spread in the country. But now these rules no longer suffice. The questions to be dealt with have assumed a more concrete form, and this not only in a general but in a specific manner, and in the very district in which the society in question is situated. Thus in the smaller of the two Rhondda valleys there is a pit called the Watchtown colliery, where some 2000 miners are employed. Formerly these men paid a poundage of 3*d.* to their medical officer, as is the general custom, and everything went on quite satisfactorily. The cheque was sent from the colliery directly to the medical officer and there was no intermediary between him and his patients, except the pay-clerk who deducted the 3*d.* in the pound from the miners' wages for the medical attendant. But about a year ago the medical officer died and then the miners thought that they would take the matter into their own hands, appoint their own medical officer, pay him a fixed salary, buy their own drugs, and manage everything themselves. In a word, it was a lay committee of workmen the members of which had made up their minds to exploit medical men, to employ them on a wages system, and to strive to make some profit out of their medical officer's work. To overcome the preliminary difficulty they offered a large salary, more than £400 a year, to a medical assistant. They expressed themselves ready to pay for a qualified assistant and also supplied a horse and carriage. This they thought they could do and that there would still remain a surplus out of the 3*d.* in the pound deducted from the wages earned by some 2000 miners. But if there are 2000 miners they must represent with their wives and children a population of from 8000 to 10,000 persons and therefore must require four or five medical attendants and when these have been properly paid there will not be much remaining in the way of profits out of the 3*d.* in the pound. In any case it is not for miners to trade on the services which medical men may be able to render, and this was an arrangement which the Medico-Ethical Society should have fought against. As a matter of fact it did appoint a deputation to wait on the directors of the colliery, but the latter naturally replied that they could not interfere with the men's wages. The men, of course, had the right to do what they chose with their own money. And this they did. The miners advertised in the local papers for a medical officer. They received in reply many offers which they showed to the medical assistant whose services they were anxious to secure. It was easy for them to argue that he would do no good by refusing the liberal offer which they made to him when there were so many others ready to take the place. All this is precisely what might have been anticipated and what medical unions have to prevent. But the local ethical society was not armed for such a struggle. The fact that its members appealed to the directors of the colliery showed how little they understood the situation. It was the sympathy of the men themselves and of the public that they needed. The medical practitioners desire not to be exploited by the miners yet they appeal to the colliery owners who themselves are exploiting those very miners. This was not the way to make their position clear and so the case was lost. The system that had worked so well was broken down and now the medical service is managed by a lay committee which employs and exploits medical practitioners on the wages system. This has been going on now for close upon a year and the only hope is that it may not prove as profitable to the miners as was anticipated. But when this mild acquiescence in defeat is compared with the energetic and triumphant action of the medical unions of colliery surgeons in the north of England it must be confessed that Wales is behind the times. Indeed, speaking to one of the officials of the East Glamorgan and Monmouthshire Colliery Surgeons' Medico Ethical Society he confessed that as a society they had not much to do. They were useful mainly for social purposes; there was not much to fight about. This may be so for the moment and the fact that they have lost control over the method of medical practice at Watchtown may not be considered a very serious matter, but it should be obvious that this is only a beginning. The example will be followed. Others will also want to alter the present system, to form committees to employ medical men, and to sweat some profit out of their professional labours. This matter must not be allowed to rest as it now stands and such organisation as exists must be revised and recast in a stronger mould for the distinct purpose of taking in hand these economic questions.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

Proposed Absorption of the Calcutta Plague Department into the Health Department.—The Plague Epidemic in India.—The Salted Fish Theory of Leprosy.

IT is proposed that the plague department in Calcutta as a separate establishment should cease to exist at the end of the current plague season—about the end of June. The object appears to be to save expense. It is thought because disinfection is the only measure taken to endeavour to control the spread of the disease that the health department of the municipality can do this as effectually, but the advocates for this change disregard the work of the plague officers in detecting and registering where cases occur. The preliminary work of inquiry is the troublesome part—it is easy enough to disinfect a house when the case has been discovered. The imperfect registration of disease and of ordinary deaths by the health department in Calcutta is not a happy augury that plague cases and deaths will be investigated with anything like the present thoroughness and the authorities will therefore not possess the same accurate estimate of the amount of plague existing in the city. The plague administration of Calcutta has been gradually evolved during the past four years and if nothing much is done that is the Government policy and not the fault of the department. For accuracy of records the plague staff of Calcutta is probably far superior to any other in India.

The plague epidemic throughout India goes on steadily increasing. The deaths last week numbered 25,882, as against 25,870 for the previous seven days and 12,695 for the corresponding week last year. Bombay city returned 716 deaths; Calcutta, 171; Karachi, 25; and Poona about 600. The Bombay Presidency reported 10,835 deaths; the Madras Presidency, 604; Bengal Presidency, 2941; the United Provinces, 2995; the Punjab, 3581; the Central Provinces, 1203; the Mysore State, 526; the Hyderabad State, 1640; Central India, 435; and Kashmir, 1717. The increase is general, but Poona and some other places seem to suffer out of all proportion to the number of the population. During the past fortnight the death-rate in Poona has been about 500 per 1000 per annum. In Calcutta the rate has never reached 100, while even in Bombay it has not exceeded 150 in any of the outbreaks.

The salted fish theory of the spread of leprosy has not met with much support from the medical profession in Calcutta. At the lecture recently given by Mr. Hutchinson nearly every speaker opposed it. The license which is permitted to lepers to mix freely with the population, to handle other men's food, and to dwell with their families under very insanitary conditions indicates the slight degree of contagion which can be attached to the disease and to be explained its spread is therefore sought by means of food. The evidence often advanced is so inconclusive that neither salt fish nor any other article of food is believed to account for its dissemination. India, moreover, affords even less circumstantial evidence than do many other places.

Feb. 20th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

Liverpool Infectious Hospitals: New Scheme involving the Expenditure of £130,000.

DR. S. W. WHEATON, Local Government Board inspector, held an inquiry at the municipal offices into the application of the corporation for powers to borrow £130,000 for the provision of a hospital at Fazakerley for infectious diseases other than small-pox. In the year 1898 the corporation purchased at Fazakerley 113 acres of land at a total cost of £37,491 and in 1899 it acquired an additional five acres for £3407. Already £79,647 had been expended on the estate, including the expense of works in the course of erection. Pavilions already erected provided for 160 beds. The present loan of £130,000 was required to erect nine more pavilions, four isolation pavilions, administration block, nurses' home, kitchen, laundry, discharge block, and porter's lodge, for which the estimate was £46,207. The drainage, &c., would cost £16,100 and heating, lighting, and other items would cost £7500. The corporation asked for 30 years in which to repay the loan. Dr. E. W. Hope explained that the new buildings would provide accommodation for 300 patients suffering from all forms of infectious disease other than small-pox, and it was hoped to find some accommodation for whooping-cough and measles. Both the latter diseases were very fatal in Liverpool and the medical officer felt the urgent need for making provision for them; but it would be contingent upon the corporation retaining all the hospital accommodation which it now possessed, which totalled 925 beds, including the accommodation for small-pox patients. The conditions in Liverpool were quite exceptional owing to the vast number of immigrants passing through the city. Although the corporation now felt the pinch of the need for more hospital accommodation it had a much larger number of beds at its disposal than one bed per 1000 of the population, the proportion which the Local Government Board recommended. Excluding the accommodation for small-pox, there were 845 beds for ordinary forms of infectious disease to meet the requirements of a population of 710,000, and as a general rule all the beds were occupied. At the present time 200 beds were kept in reserve for any possible extension of small-pox. The corporation did not apprehend any extension but it had to take precautions. Not only did the exceptional demand necessitate the provision for more hospital accommodation, but the exceptional circumstances made it necessary to provide in the proposed new buildings a special form of isolation ward which was expected to be of great use in economising nursing space. Owing also to the lack of accommodation in the city hospitals, cases of typhoid fever had to be sent to the general hospitals. The inspector afterwards visited the Fazakerley estate.

The Small-pox Epidemic: Liverpool and Alien Immigration.

The medical officer of health (Dr. Hope) reported to the health committee that there were 310 small-pox patients in the corporation infectious hospitals on March 12th as against 305 in the previous week. 88 cases had been reported during the week compared with 60 in the previous week and 105 on Feb. 26th. Six deaths had occurred as against seven in the previous week. The subject of alien immigration was referred to by Mr. Shelmerdine, who elicited from Dr. Hope that he had given considerable attention to the matter in view of the committee having wished him to give evidence before the Royal Commission. So far as Liverpool was concerned, Dr. Hope said that it did not appear that alien immigration had reached such a stage as in any way to endanger the health of the city. Alien immigrants had some time ago settled down in considerable numbers in certain parts of London, Manchester, and Leeds, but when they came to Liverpool they found what was practically an open field for them. They set to work at different trades, such as furniture-making, furniture-polishing, glazing, &c., they made a good living, and kept their houses in good order. Altogether, they compared favourably with other people of their class. Of course, if instead of 6000 they had, as in London, 60,000 aliens, the whole aspect would be completely changed. Competition in their own ranks would arise and disastrous poverty would result, leading to undesirable conditions of living. Taking the matter as it stood there was no evidence to show that Liverpool had suffered in any way as a result of alien immigration. His observations applied to the class as a whole, but, of course, there were undesirable characters amongst them as amongst other classes. They endeavoured to comply with the sanitary regulations of the city and were rarely found in the police-court for breaches of the sanitary by-laws.

Bequests to Charities.

The late Mr. Robert Ithel of Chester has bequeathed £100 each to the David Lewis Northern Hospital, the Royal Southern Hospital, the Consumption Hospital, and the Chester Infirmary; and £50 each to the Cancer and Skin Hospital and the Convalescent Home, Parkgate.

Liverpool School of Tropical Medicine.

Sir Alfred Jones, K.C.M.G., the chairman of the School of Tropical Medicine, has received a letter from Prince Auguste d'Arenberg, the president of the Suez Canal Company, stating that the company is anxious to assist in the humane work that the Liverpool School is carrying on in West Africa and has resolved to subscribe £50 towards the expenses of the school. A cheque for that amount was forwarded at the same time.

Death of Dr. Alexander Barron.

The news of the death of Dr. Alexander Barron, which occurred at Buenos Ayres on March 4th, was received in Liverpool with much regret by a large circle of friends. The late Dr. Barron was a distinguished student of the Liverpool School of Medicine. In 1878 and 1879 he won successively the junior and senior Lyon Jones scholarships. He also obtained the Torr gold medals in anatomy and physiology. Having graduated as Bachelor of Medicine with honours at the University of London in 1881 he was appointed demonstrator of anatomy at University College, Liverpool, and pathologist to the Royal Infirmary. He was subsequently appointed professor of pathology and in that capacity he gave important evidence at the Maybrick trial in 1889. He attended the inquest and arrived at the conclusion that Mr. Maybrick had died from acute inflammation of the stomach due to an irritant poison. After resigning his appointment at University College he started in practice in Rodney-street where he was highly successful. Latterly his health broke down owing to attacks of ague which he had contracted in Africa and feeling that he needed bracing he determined to take a sea voyage and proceeded to the Argentine on board the *Highland Chief*, leaving Liverpool about six weeks ago. He had scarcely reached port when he died. He was a man of great intellectual attainments and a charming conversationalist. He had travelled much and had a fund of interesting information. He was about 50 years of age.

March 17th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Water-supply of Glamorganshire.

AT the conference upon water-supplies held by the Sanitary Institute in the autumn of 1901 a most instructive discussion was initiated by Dr. Alfred Greenwood, the medical officer of health of Blackburn, upon the desirability for reports on the water-supply of each county. Such a report has just been issued to the Glamorgan county council by the medical officer of health of the county, Dr. William Williams. Included in its pages are maps showing existing and prospective waterworks, gathering grounds and pumping stations, with their relation to the South Wales coalfield, the physical configuration, and the rivers of Glamorganshire and the adjacent counties. The report deals in detail with the population of the county and its increase in various parts; the physical features of the county; the rainfall and watersheds; the sources of the water-supplies; the local supplies; and the results of the analysis of the public supplies. This last has been obtained from the records of the Cardiff and County Public Health Laboratory where there has been undertaken during the past four years a systematic quarterly examination of the public water-supplies within the administrative county.

Somerset Poor-law Authorities.

At a conference of the members of Poor-law unions and rural district councils of Somerset held on March 7th a resolution was adopted expressing the opinion that probationer nurses who had received one year's training in a minor training school should be designated by the term "qualified

probationer" and not by the term "qualified nurse," as suggested by the departmental committee of the Local Government Board. It was considered that if the latter designation is used nurses who had received a three years' training would be unduly prejudiced. At the same meeting a resolution was adopted to the effect that powers should be given to district councils to acquire land compulsorily for small sewage outfall works.

Bristol General Hospital.

The report of the managers of the Bristol General Hospital for the year 1902 states that 2290 in-patients were treated during the year, compared with 2110 in 1901. The expenditure was £12,469 and the income was £10,628. The financial position is thus no better than that of the larger and much older institution, the Bristol Royal Infirmary, which has during the past few years accumulated a debt of nearly £10,000. Fortunately, Bristol possesses many philanthropic citizens who may be trusted to come to the relief of the managers of these excellent institutions.

Bristol Royal Hospital for Children and Women.

The thirty-seventh annual meeting of the subscribers to this institution was held on March 14th. The medical report stated that 685 children and 64 women had been admitted during 1902 as in-patients, compared with 565 children and 43 women during 1901. 3213 children and 1899 women were treated as out-patients during the year. The financial statement showed that the ordinary income was £3972 and that the expenditure amounted to £4758. An appeal was made for funds to enable the committee to erect a new out patients' department at a cost of £8000. The report makes a sympathetic allusion to the death "of the much respected registrar, Mr. R. H. Chilton, who died after a short illness from diphtheria contracted in the discharge of his professional duties in the hospital."

Queen Victoria Jubilee Convalescent Home, Clifton.

The third annual report of this institution, which has just been issued, states that 1390 patients were admitted during 1902, against 1017 in 1901. The average daily number of patients was 65 and the average stay of each was 17 days.

March 17th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Diseased Meat Prosecution.

AT the Edinburgh sheriff court last week a farmer from North Berwick was charged with being the owner of a cow exposed for sale which was diseased and unfit for food. The cow had been seized in a sale yard as it was very much emaciated and coughed occasionally. Half of the udder was affected. The cow's milk was afterwards examined and found to be tuberculous. The carcass was found to be tuberculous in every part, all the organs being greatly affected. For the owner of the cow it was stated that after the udder was noticed to be affected the milk had not been used. The sheriff found the owner guilty and said that there was a concurrence on the part of the scientific witnesses that a cow affected with a cough would give rise to suspicion in the mind of any person that the animal was suffering from tuberculosis. Taking that fact into consideration, along with the cow's emaciated condition, he held that the animal was not such as any person accustomed to cows would ever believe was fit for food. A fine of £10 was inflicted, including expenses.

Vaccination in Scotland.

It has been discovered that Scotland has a vaccination grievance. A conference of representatives of various medical authorities was held last week in the Royal College of Physicians, Edinburgh, to consider the conditions under which vaccination is practised in Scotland. The meeting was attended by representatives from the medical faculties of the Scottish universities, of the Edinburgh Royal Colleges, of the Glasgow Faculty of Physicians and Surgeons, of the Incorporated Society of Medical Officers of Health for Scotland, and of the recognised teachers of vaccination. After prolonged deliberation the following motions were adopted: (1) That it is desirable that the medical profession in Scotland should enjoy the same facilities in regard to an authorised supply of vaccine as are enjoyed by the profession in England; and (2) that an institution for the preparation of calf lymph should be established in Scotland. Sir T. R. Fraser, Professor J. Glaister, Mr. J. Maxwell Ross, Dr. J. B. Buist, and Dr. Francis Cadell were appointed members of a committee to prepare a memorial embodying the views of the conference for submission to the Secretary for Scotland and to arrange for an influential deputation in support of the memorial. The first motion will meet with general approval, and surprise may be expressed that the profession in Scotland has only now discovered that it was denied facilities enjoyed by its English brethren. The second motion is one regarding which it may safely be assumed that the Treasury will have something to say.

Edinburgh Police Report.

The chief constable of Edinburgh has just issued his annual report which contains some matters which must interest the members of the medical profession. The number of murders was five, an unprecedented number for recent years. Juvenile crime in the city receives considerable attention in the report. The chief constable holds that juvenile depravity is regulated to a very great extent by the home influence on the child. During the year the number of juveniles convicted at the court has decreased, but the number cautioned by the chief constable has increased nearly threefold. While admitting the force of various contentions which might be advanced to qualify the aspect of juvenile delinquency and crime the fact remains that there confronts us a vast and increasing volume of juvenile delinquency and how to cope with it successfully threatens to become one of the greatest problems of the day. Such is the chief constable's opinion and it has often suggested itself to me that members of the medical profession who are brought closely into contact with the children in the poorer parts of the city might have practical suggestions to make that would be of service in the consideration of this very serious problem. Universal education, such as the board schools give, does not appear to be the panacea which it was hoped by many it would prove to be.

Extension of the Western Infirmary, Glasgow.

A meeting of Fairfield Shipyard employés was held on March 7th to consider how they might best assist in raising funds for the proposed new wing. The matter came before them in the form of a recommendation by the accident fund committee, which was to the effect that the employés should contribute as follows—namely, 9*d.* by those in the first class, 6*d.* by those in the second class, and 3*d.* by those in the third class, the deduction to be spread over three payments. Ex-Bailie Dickson, chairman of the Western Infirmary board, and Mr. Johnston, honorary treasurer, being among those invited to the meeting, explained the urgency of the situation in respect to more accommodation being required. There were actually 350 patients on the books waiting for admission, and with all this demand in beds they were required to admit accident cases at a moment's notice, thus keeping the wards constantly overcrowded. The men showed great sympathy with the movement and the recommendation was adopted unanimously. The higher officials of the Fairfield Company have also agreed to contribute towards the same object and Mr. Strachan, the secretary of the company, has intimated the intention of the directors to contribute a sum of £500. It is to be hoped that other large public works the employés of which are so much interested in the welfare of the Western Infirmary will see that it is their duty to render pecuniary assistance at this time.

Glasgow Lock Hospital.

The qualified contributors and yearly subscribers to this hospital held their annual meeting on March 6th, Lord Provost Primrose presiding. The annual report showed that 266 patients had been admitted during the year—169 for the first time, 60 for the second, 22 for the third, six for the fourth, five for the fifth, and one for the nineteenth time. The financial statement showed an income of £1014 14*s.* 9*d.*, but the expenditure, including an unusual outlay in structural alterations of £167 6*s.* 4*d.*, had exceeded this by £3 4*s.* 5*d.* The Lord Provost spoke of the beneficent work carried on by the directorate and expressed the hope that the good that had resulted in the past would continue.

Glasgow Ophthalmic Institution.

This institution was first founded in 1870 but since 1891 has been under the management of the Royal Infirmary. The annual report, just published, shows that during the

year 1902 there have been 22,475 attendances at the dispensary, showing an increase of 4290 over last year. 6482 patients attended for the first time, and of these 1062 were admitted to the wards for special treatment, showing an increase of indoor patients of 94. The managers, in making this statement, appeal for greater pecuniary assistance to enable them to overtake the work.

March 16th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Consumption in Belfast.

AT a weekly meeting of the public health committee of Belfast held on March 5th a letter was received from the Local Government Board inquiring what steps had been taken towards carrying out the Board's suggestions for preventing the spread of pulmonary tuberculosis in the city. These suggestions were contained in a circular dated September, 1901, and included among other things the establishment of municipal sanatoriums for the treatment of consumptive patients. It was stated by the medical superintendent officer of health (Dr. H. Whitaker) that a large amount of literature on the question had been circulated, that three female sanitary inspectors had in their visits to the houses of the working classes given advice on the question, and that arrangements had been made to have all cases of death from consumption notified to the committee by the registrars of the public burial grounds. That Belfast enjoys a most unenviable notoriety for the prevalence in it of consumption is evident from the fact that in Dr. Whitaker's report for the last month it is recorded that 256 out of a total of 651 deaths were due to "phthisis and diseases of the respiratory organs." It was decided to inform the Local Government Board that the health committee was endeavouring to deal with this difficult problem, but owing to the question of taxation the majority of the committee felt that the time for the erection of sanatoriums had not come yet.

Rainfall in February in Belfast.

In the month of February rain fell on 26 days to the extent of 3·02 inches, the average for the last 28 years being 2·75 inches. The year 1903 so far has been extremely wet, the total amount being 8·35 inches, which is much above the average (6·16 inches).

Irish Medical Association.

At a largely attended meeting of Poor-law medical officers of Tyrone, held in the White Hart Hotel, Omagh, on March 7th, it was decided to form a County Tyrone Branch of the Irish Medical Association. Dr. E. C. Thompson, M.P., was appointed president and Dr. J. Duncan was elected secretary. The members agreed to apply for no dispensary appointment under a salary of £200 per annum and for no workhouse hospital appointment under £120 a year and to insist on a revision of a scale of consultation fees, the minimum fee being £2 2*s*. It was also agreed that the fee for a locum-tenent for a dispensary medical officer should be £4 4*s*. a week, for a workhouse medical officer £3 3*s*. a week, and for both offices combined £5 10*s*. a week. Dr. Thompson spoke of the reasonable programme of the Irish Medical Association which demanded a pension for the medical officer, a holiday of four weeks, suitable remuneration when acting as locum-tenent, and proper remuneration for the positions of dispensary and workhouse medical officers. The County Tyrone Branch has determined to adhere to this programme and to agitate for a pension scheme, payment of substitutes, a holiday of four weeks, and proper remuneration for health officers.

A Dispensary Medical Officer's Grievance.

At a meeting of the Stranorlar board of guardians on March 9th Dr. S. A. McCann, medical officer of the Cloghan district, wrote a letter to the board drawing attention to the abuses of red lines. He said that he had no fault to find with the poor of his district but he had always a lot of trouble and trickery from the class of people who were able to pay a medical man a reasonable fee but would not as, they said, he got enough from the rates. It was decided to write to the persons complained of.

Belfast District Asylum.

It has been decided (in view of the lamentable disaster at Colney Hatch Asylum) to ask the chief officer of the Belfast fire brigade to go through the asylum and to point out what is required to protect the place from fire. The asylum is under the control of the Belfast city council.

Medical Officers as Witnesses.

At the weekly meeting of the Londonderry board of guardians on March 7th a letter was received from the Local Government Board of importance to all boards of guardians. The Londonderry guardians objected to pay a substitute for a medical officer when the latter was summoned as a witness in a civil case, holding that, as he received a fee and expenses, he should pay his own substitute. They decided that in such cases, if it was necessary to provide a substitute, they would do so but the amount would be deducted from the salary of the medical officer for whom he acted, and then passed a resolution to the effect that in every case in which a medical officer received a fee for attendance at a civil or criminal court he should provide a substitute, if necessary, at his own expense. The Local Government Board stated that it had considered this resolution, and pointed out that the guardians were not empowered to make any deduction under Article 24 of the dispensary rules from the salaries of their dispensary medical officers "unless with the Local Government Board's approval, had and obtained." The fact of a dispensary medical officer being entitled to a fee for his attendance at court as a witness on behalf of the board of guardians or the district council would not warrant the Local Government Board in authorising a deduction from his salary to recoup the guardians the expense incurred by them in providing a medical practitioner to discharge the duties of the medical officer on that occasion. The Board also stated that it was not prepared to consent to a deduction being made from a medical officer's salary in respect of his necessary absence from duty as a witness on subpœna for the Crown in a criminal case.

The Ulster Medical Society.

The sixth general meeting was held in the Medical Institute, Belfast, on March 5th, the President, Dr. John Campbell, being in the chair. Dr. C. E. Shaw showed a patient for diagnosis who had Proptosis of the Eyeballs due probably to a Retro-ocular Tumour. Dr. J. R. Davison showed a patient with a Cancerous Ulcer of the Breast who was under treatment with the Roentgen rays. Dr. Shaw read notes on Some Recent Advances in Ocular Therapeutics. Dr. R. W. Leslie read notes on the Use of Cacodylate of Sodium in Phthisis and gave details of cases treated in this way. Dr. W. D. Donnan read a paper on Two Cases of Acute Intussusception in Children, both of which were operated on by Dr. T. S. Kirk at the Belfast Hospital for Sick Children. The one in which surgical measures were adopted early resulted in recovery. Dr. Joseph Martin read short notes on a case of Pneumothorax following Pneumonia. Dr. Davison gave an account of a case of Plastic Bronchitis and its Successful Treatment by the Injection of Diphtheritic Antitoxin. Specimens of the casts were shown.

March 17th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Infant Life Insurance.

M. BUDIN, to whom the medical profession owes sundry excellent studies upon the hygiene and feeding of infancy and infants, has been struck by the excessively high infant mortality in certain departments of the north of France. On March 3rd he described before the Academy of Medicine the results of some inquiries which he had made and his utter astonishment when he found that in certain departments in the north there was a regular premium on infant mortality. His statement referred to certain Belgian insurance companies which for a very small sum insure children in infancy or even before birth. In case of the child's death the father draws the insurance money, nominally for burial expenses, and as among the class of persons who take out these insurances funerals can generally be obtained gratuitously the insurance money is clear gain. A baby can be insured in this manner in several different companies. Moreover, a third person can insure a baby without the knowledge of its parents, and M. Budin cited the case of a nurse who was thus enabled "to lose" one after the other seven children out of eight who had been confided to her

care and to draw seven insurances. Nay, more, the seven children were respectively insured in two or three different companies, the parents knowing nothing of the matter. M. Budin asked the Academy to adopt a motion calling upon the Minister of the Interior to inquire into the working of these companies, especially in the north of France. The Academy adopted the motion unanimously, if rather as a counsel of perfection, for unfortunately very little can be done. The Minister of Commerce, who has already been sounded in the matter by M. Strauss, acting for the Ligue contre la Mortalité Infantile, gave it as his opinion that at present there is no legal method by which such insurance companies can be prevented from carrying on business at their pleasure in French territory.

The Quarantine Station at Marseilles.

I have upon a former occasion mentioned in my letters the defective state of the lazaretto at Frioul, Marseilles.[1] Promises had been made that these defects should be remedied, but so far these promises have not been fulfilled. Only recently a lamentable affair has occurred which will concentrate attention on the matter. A British vessel, the *Oroya*, which had on board amongst other passengers certain medical men returning from the Egyptian Medical Congress, was detained at Frioul by the health authorities of Marseilles because after leaving Naples she had on board a poor Indian who was accustomed to go barefoot. This poor man suffered from painful and swollen inguinal glands and the suspicion of plague justified every precaution being taken. No bacilli pestis could be found, however, and the man is at present perfectly well. The unfortunate passengers were all detained in the lazaretto and among them was the son of an eminent professor in the University of Lyons. This young man had been confined to his berth for some days suffering from typhoid fever. He was, however, detained in company with the rest of the passengers and was placed in quarantine. There are at Frioul no proper supply of drinking water, no means of warming the lazaretto, and no staff capable of giving any nursing assistance. The unhappy patient therefore had to lie in a corner of the room shivering with cold. His father in vain implored the authorities to suffer his son to go free, but nothing was done for four days, when at 11 o'clock at night an order arrived for the patient to be allowed to depart. The military authorities provided nurses who carried the patient to the train by which he travelled to Lyons, for Frioul does not possess even a stretcher. Despite every care the patient died from internal hæmorrhage. His unhappy father is naturally of opinion that the case shows the absolute necessity for such reforms as will prevent the recurrence of an event which is a disgrace to France.

A New Anæsthetic.

At the meeting of the Academy of Medicine held on March 17th M. Courtade gave an account of a new local anæsthetic. It is para-amidobenzoic ether and has been named *anesthésine*. It is a derivative of orthoform and is but slightly soluble in water, but freely so in glycerine and in fatty bodies. It is not poisonous, which gives it a great advantage over cocaine, while its action is much less transitory than that of that drug. M. Courtade has used the drug especially in cases of patients suffering from tuberculous or syphilitic ulceration of the pharynx which rendered swallowing very painful or even impossible. After an application of *anesthésine* in powder they were able to swallow without pain.

March 17th.

EGYPT.

(FROM OUR OWN CORRESPONDENT.)

Cairo Medical Congress.

IN reference to Plague Dr. Gotschlich (Alexandria), while mentioning certain rare cases which have occurred in Alexandria during the last four years, reported some instances of sudden death in the street in people not previously known to be ill, reminding one of similar cases reported in the Middle Ages. On the other hand, there were several very mild cases with such slight swelling of glands that diagnosis could only be made bacteriologically. Among unusual sites for the bubo were the popliteal space, the elbow, and the retro-peritoneal glands in the iliac fossa. One woman died from plague two days after giving birth to a healthy child who did not contract the disease. Three patients suffering from pneumonic plague recovered at the Greek Hospital, but in all the three cases virulent bacilli were found for several weeks in the sputa, though the patients were walking about and indignantly protested at being still detained in the hospital. Other patients had bloody sputa for only one day, which then became white and innocent-looking, like that in ordinary bronchitis, though still teeming with the plague bacilli. Dr. Gotschlich recommends in cases of doubtful diagnosis the method of specific agglutination by dried anti-plague serum as prepared at the Institut Pasteur. In Egypt plague epidemics can be divided into two distinct groups, the summer and winter variety, but in Egypt plague only exists as an epidemic between April and October, the maximum number of cases being attained in May or June. With reference to the rat theory of infection Dr. Gotschlich has examined 6500 dead rats to see when their breeding season occurs. He finds that the maximum number of rats with young is in May and June, and that only 1 per cent. of them are pregnant between October and February. The cases which occur in winter are probably not caused by rats but the infection is spread directly from man to man by the pneumonic variety, and as a proof of this he quoted 11 cases as having occurred in one house in Tantah.—Dr. Valassopoulo (Alexandria) gave statistics of 54 cases of plague treated in the Greek Hospital during 1901-02. 11 patients died, giving a mortality of 20·3 per cent., while of 35 of the cases treated by anti-plague serum from Paris death occurred in only 17·1 per cent. He believes that these results could be improved if the patients in future were injected before the third day of the disease.

Dr. Engel (Cairo) read a paper on Leprosy in Egypt. He pointed out that though there is as yet no sufficient evidence from modern Egyptologists that leprosy existed in the time of the ancient Egyptians, there can be no doubt that the disease was present in Egypt some years before the Christian era. Macrizy later reported that Ibn Abdelmalek in A.D. 707 decreed that lepers should be segregated in an asylum which he had built in Cairo. But this hospital was not of long duration, for Ibn Touloun, some 200 years later, built a leper hospital because none existed then. Coming down to modern times, Pruner in 1847 wrote that, unlike other Oriental countries, lepers in Egypt were allowed to mix freely with the people, and this is still the custom in this country. It is indeed a wonder that the official number of lepers should never have been reported during the last 20 years as being higher than 2204. As regards the occupations of Egyptian lepers the following have been noted: teachers, sheikhs, and sellers of vegetables, sweetmeats, fish, cigarettes, water, and milk. With reference to the variety, 147 cases out of 848 were of the nodular kind, 220 were anæsthetic, and the remainder were mixed cases; so far as these figures go it looks as if the anæsthetic form prevails chiefly in Egypt. There is no evidence that any European has ever contracted leprosy here, though there are many cases of Greeks who have arrived with the disease from the Greek islands.—Dr. F. M. Sandwith (Cairo) showed two photographs of an Egyptian leper and pointed out that the great improvement which had taken place after subcutaneous injections of chaulmoogra oil extended over a period of five years.

Cairo, March 9th.

[1] THE LANCET, August 17th, 1901, p. 493.

UNIVERSITY OF LONDON.—FACULTY OF MEDICINE.—A meeting of the Faculty of Medicine will be held at the University buildings, South Kensington, on Friday, March 27th, at five o'clock. The faculty will proceed to the election of two representatives upon the senate. At the first senatorial election under the new constitution of the University in 1901 the faculty elected as its representatives Dr. Bradford, Dr. Fowler and Dr. Perry. In accordance with the scheme of rotation laid down in the statutes the two first-named of these representatives now vacate their office and are re-eligible. At the present and at all future elections the appointments will be for a period of four years. The other business of the meeting includes the presentation of a report from the Dean of the faculty upon the progress of the scheme for the concentration of the preliminary and intermediate medical studies, and the consideration of a motion having for its object the coördination of the action of the various boards of study in the Faculty of Medicine.

Obituary.

ENRICO BOTTINI.

THE Senator Enrico Bottini, sometime professor of operative surgery in the University of Pavia, died on the evening of March 11th in his beautiful villa "Il Riposo" at San Remo on the Ligurian Riviera. Born at Stradella in Piedmont on Sept. 7th, 1837, he proceeded to the University of Turin and there, after a brilliant course of study in arts and medicine, graduated with high honours in surgery in 1860. Five years thereafter he gained, over the heads of formidable competitors, the post of obstetrician and surgeon-in-chief in the Ospedale Maggiore at Novara and lost no time in showing himself to be one of the first of his profession, whether at the bedside or at the operating table. Indeed, he had barely been a year in the chair when he published a memoir on the use of carbolic acid in surgery and taxidermy for the arrest of fermentation and putrid decomposition. By the Senator Durante of Rome and many other distinguished Italian surgeons he is held to have come nearest, among many precursors, to anticipating Lord Lister in antiseptic surgery, while they also admit that among themselves no one sooner than Bottini recognised the morbigenous elements in parasites or was more promptly and intelligently alive to the first indications of bacteriological science. Promoted in 1877 to the chair of surgery in the University of Pavia, he made special studies in galvano-cautery, and readers of THE LANCET[1] all over the world still remember his masterly paper on the splendid results obtained by that means, particularly in angioma of the face. At the great International Congress of the Medical Sciences held in 1890 at Berlin he read a paper on his operative methods which was considered as one of the best which the congress evoked and the statistics of his successful operations in abdominal surgery, in the removal of the vagina, and in the extirpation of the larynx did much to enhance the credit of the Italian healing art in the eyes of the profession. He was an excellent expositor, whether by tongue or pen—a gift which induced his fellow-townsmen of Stradella to make him their Deputy in the Italian Parliament on the death of their old representative, the ex-Premier Agostino Depretis. This was in 1887, a critical period in his country's political life, and to the surprise of his colleagues Bottini accepted the mandate, resigning his professorial chair for a short time. In 1891, however, when he was made Senator of the Kingdom, he again gave his whole mind to his proper work, continuing to perform it with all his old energy and success till the first faint symptoms of the malady that carried him off counselled relaxation, if not abandonment, of his daily routine. He retired to "Il Riposo," the sumptuous and finely situated villa he had constructed for himself on the Ligurian seaboard, whence he would return to Pavia on stated occasions to deliver a lecture in the school. But this was only a method of gradually disengaging himself from professorial or professional work and last summer, as recorded in THE LANCET[2] at the time, the cerebral congestion which had long troubled him resulted in hæmorrhage which partially, but only temporarily, deprived him of speech and motor power. He made a good recovery, however, thanks to the skill and affectionate care of his colleagues, especially his old fellow-student Dr. Giuseppe Ameglio. A considerable period of "lettered ease" seemed in store for him and he had got through the trying winter with a measure of health denied to many when, on the morning of the 11th, he felt "not so well." Still he was able to enjoy his favourite literature and he had just heard the last chapter of the Duke of the Abruzzi's Log of the *Stellare Polare* read to him when a violent apoplectic seizure supervened, depriving him of articulation though not of intelligence. Dr. Ameglio was promptly in attendance, but it was evident that this latest seizure was to be the last. Consciousness gradually faded and at 4.30 in the afternoon he passed away. He was buried in his native Stradella with every mark of respect and sorrow in the presence of a large concourse of mourners, professional and lay.

[1] THE LANCET, Sept. 20th, 1890, p. 613.
[2] THE LANCET, Sept. 13th, 1902, p. 760.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—Diplomas in Public Health were granted jointly with the Royal College of Physicians of London to the following gentlemen:—

Bertram Leeds Thomas Barnett, M.B., B.C. Camb., L.R.C.P. Lond., M.R.C.S. Eng., Cambridge University and St. George's Hospital; Herbert James Barratt, L.R.C.P. Lond., M.R.C.S. Eng., St. Bartholomew's Hospital; John Bell, L.R.C.P. Lond., M.R.C.S. Eng., University College, London; James Bennett, L.R.C.P. Lond., M.R.C.S. Eng., Owens College and Royal Infirmary, Manchester; Edward Collins Bousfield, L.R.C.P. Lond., M.R.C.S. Eng., St. Bartholomew's Hospital; Edwin Harold Brown, M.D. Brux., M.R.C.P. Lond., L.R.C.S. Edin., Grant Medical College, Bombay, and University College, London; Richard Foster Clark, L.R.C.P. Lond., M.R.C.S. Eng., Guy's Hospital; Alexander Gordon Davidson, M.D., C.M. Edin., Aberdeen University and University College, London; Arthur Briggs Dunne, M.B., B.C. Camb., L.R.C.P. Lond., M.R.C.S. Eng., L.S.A. Lond., Cambridge University and University College, Liverpool; Ernest Gardiner Hill, L.R.C.P. Lond., M.R.C.S. Eng., St. Mary's Hospital; Gwilym Prosser Wozencroft James, L.R.C.P. Lond., M.R.C.S. Eng., University College, London, and Cardiff; William Charrott Lodwidge, L.R.C.P. Lond., M.R.C.S. Eng., St. Mary's Hospital; Thomas Stratford Logan, L.R.C.P. & S. Edin., F.F.P.S. Glasg., Queen's College, Belfast, and Yorkshire College, Leeds; Leslie Milburn, L.R.C.P. Lond., M.R.C.S. Eng., Middlesex Hospital; David James Morgan, M.B., B.C. Camb., L.S.A. Lond., Cambridge University and St. Mary's Hospital; William Murray, M.B., Ch.B. Edin., Edinburgh University and University College Hospital; William John Shannon, M.B., B.Ch. R.U. Irel., London Hospital; and John Moir Petrie, M.B., Ch.B. Aberd., Aberdeen University and King's College Hospital.

The following gentlemen passed the Preliminary Science Examination for the Licence in Dental Surgery:—

William Ryding Bennette, Holt School of Science, Birkenhead; Leonard Webster Biscombe, University College, Nottingham; David Brewster and Alexander Henry Craig, Charing-cross Hospital; Geoffrey Dawson, Birkbeck Institution; Harold Hinson, Technical School, Manchester; Frank Maurice Holborn, Polytechnic Institute; Sidney Herbert Hole and Marshall Kennedy, Charing-cross Hospital; Percy Barrett Mardon, Birkbeck Institution; Frank Alfred Husbands, Philip Edwin Luce, James William Mawer, Harold John Russell, and Herbert John Snowden, Guy's Hospital; Norman Yorke Tessier and Frank Throp, Charing-cross Hospital; and Herbert Bayly Trible, Middlesex Hospital.

UNIVERSITY OF CAMBRIDGE.—On March 12th the following degrees were conferred:—

M.B. and B.C.—C. H. Gregory, Emmanuel.
B.C.—E. E. Cornaby, Non-collegiate.

UNIVERSITY OF BRUSSELS.—At the M.D. examination for practitioners, held in February, the following candidates obtained the degree with honours (there were six candidates):—

A. R. Henchley, L.R.C.P. and S. Edin., L.S.A. Lond., Blackheath; N. Leonard, M.R.C.S., L.R.C.P., Nottingham; and H. Wolseley Lewis, F.R.C.S., Banstead, Surrey.

BRITISH BALNEOLOGICAL AND CLIMATOLOGICAL SOCIETY.—The British Balneological and Climatological Society has arranged to visit the northern spas. Among the places inspected will be Matlock Bath, Dovedale, Rowsley, Chatsworth, Haddon Hall, Buxton, Ilkley, Harrogate, Ripon, Scarborough, and Woodhall Spa. The party is to leave London on Saturday, April 25th. The cost of the entire tour will be £13 5*s.* each, or with first-class travelling throughout £14 14*s.* Either the first half or the second half of the tour may be taken separately. The cost of the first part of the tour from London to Matlock and Buxton and back to London (including the accommodation specified in the itinerary) from Saturday, April 25th, to breakfast on Thursday morning, April 30th, will be £7 7*s.*, with third-class railway travelling, or £8 8*s.* with first-class railway travelling. The cost of the second part of the tour, from London to Harrogate and back to London (including the accommodation as specified in the itinerary, commencing with dinner at Harrogate on Friday, May 1st, and taking the remaining accommodation as given on the following days, up to and including breakfast at Woodhall Spa on May 5th) will be £7 7*s.* with third-class railway travelling, or £8 8*s.* with first-class railway travelling. The sums specified include accommodation at first-class hotels, consisting of *table d'hôte* breakfast, lunch, dinner, bedroom, lights, and service, commencing with dinner on Saturday, April 25th, and terminating with breakfast on Tuesday, May 5th (in the case of those who take the entire tour), carriage excursions (landaus) as specified, expenses of visiting various places of interest, fees to drivers, hotel and railway servants, conveyance of passengers and baggage between stations and hotels, and service

of representatives to accompany the party and to see that the arrangements are properly carried out. Applications should be made to Dr. H. L. Lunn, 3, Endsleigh-gardens, W., or to Dr. Leonard Williams, 8, York-street, Portman-square, W.

HEALTH OF BATH RURAL DISTRICT.—Mr. C. Harper, the medical officer of health of Bath rural district, in his annual report for 1902 which has just been issued, states that the estimated population of the district is 27,764. The deaths during the year numbered 324, equal to a rate of 11·6 per 1000, which is the lowest recorded for a number of years. 684 births were registered, corresponding to a rate of 24·63 per 1000, being a slightly higher rate than that of 1901. 215 cases were admitted during 1902 to the Infectious Diseases Hospital.

UNDERGROUND BAKEHOUSES.—A conference was held at the Home Office on March 13th between the Incorporated Society of Medical Officers of Health, the National Association of Master Bakers, and the Association of Operative Bakers. Mr. W. Dawkins Cramp, H.M. deputy chief inspector of factories, presided, and there was also present Dr. T. M. Legge, medical inspector of factories. The Incorporated Society of Medical Officers of Health was represented by Dr. J. Spottiswoode Cameron (president), Dr. F. J. Allan, Mr. Herbert Jones, Dr. Arthur Newsholme, Dr. Louis C. Parkes, and Dr. Joseph Priestley. The object of the conference was to discuss points of detail contained in a memorandum which had been issued by the Society of Medical Officers of Health for the guidance of those medical officers of health who would be called upon to advise their authorities in connexion with Section 101 of the Factory and Workshop Act, 1901, which deals with the continuance of underground bakehouses. At the close of the conference the master bakers suggested that the Home Office or the Local Government Board should address memoranda to district councils urging them to take early steps to inspect underground bakehouses, to intimate to the tenants whether or not certificates would be granted, and in the event of refusal to give the reasons for such refusal.

PLUMBERS AND THE PUBLIC HEALTH.—Dr. J. R. Kaye, medical officer to the West Riding County Council, at a meeting of plumbers and others held recently at the Bradford Technical College under the auspices of the Bradford District Council for the National Registration of Plumbers, delivered a lecture entitled "Plumbing in Relation to Public Health." Mr. Malcolm Paterson, C.E., presided in the unavoidable absence of the late mayor, Councillor W. C. Lupton. Dr. Kaye traced the evolution of plumbing from its earliest beginnings, saying that the great change which had taken place should on reflection give people some idea of the great extent to which the plumber now contributed to the comfort and enjoyment of life. The field of sanitary knowledge was constantly and rapidly widening and the plumber must keep abreast of the times. He said that improvement in the trade could not be complete until legislation made it illegal for other than a duly certified plumber to practise. Referring to the injurious influence of defective plumbing on health he observed that neither gases nor germs could pass through a properly constructed and properly laid water-trap on a properly ventilated system. Dr. Kaye classified the measures needed for maintaining the standard of plumbing at the level of improving sanitation under the three heads of registration, education, and practical experience, and dealt at length with each topic.

THE PRUDENTIAL ASSURANCE COMPANY.—The directors of the Prudential Assurance Company, in presenting last month their fifty-fourth annual report, show an increase of business in every direction with a correspondingly strong financial position. The number of policies issued during the year was 69,662, assuring the sum of £6,680,050 and producing a net annual premium income of £364,068. The premiums received during the year in the ordinary branch were £3,651,458, being an increase of £161,503 over the year 1901. The claims of the year amounted to £1,296,693. The premiums received during the year in the industrial branch were £5,690,907, being an increase of £161,446. The assets of the company in both branches, as shown in the balance-sheet, are £47,155,201, being an increase of £3,863,175 over those of 1901. The Prudential Assurance Company's continued prosperity is attributed to the thrift of many thousands of persons, a large proportion of whom are in poor circumstances and find their incomes barely sufficient to live upon. No class in the country is so cognisant of the struggles of the poor as the general practitioner and many of our readers can testify that the economy which piles up the resources of the Prudential Assurance Company has often to be displayed in the face of real adversity. Self-denial, whether exercised in the investment of pennies or pounds, is equally laudable, and the medical man knows that in a household where thrift and foresight are to be found the care of the sick is more likely to be attended with successful results.

DONATIONS AND BEQUESTS.—Under the will of Miss E. Carnegy of Craigs, Forfarshire, the Edinburgh Royal Infirmary, the Montrose Infirmary, and the Edinburgh Livingstone Memorial Medical Mission are bequeathed £1000 each; the Institution for the Relief of Incurables at their own Homes and the Montrose Destitute Sick Society receive £500 each; and £100 are bequeathed to the Convalescent Home at Gilmerton.—Mr. W. K. Wait of Clifton, Bristol, has by his will bequeathed £100 to the Bristol Royal Infirmary.—Mr. J. Pickup has under his will left £3000 to the Blackburn Infirmary.—By the will of Mr. J. G. Murdoch of London the London Temperance Hospital receives £250.—Under the will of Dr. T. J. Colman of Bristol £1000 are bequeathed to the Bristol Benevolent Institution and the Bristol Royal Infirmary, the Bristol General Hospital, and Müller's Orphanage receive £100 each.—Under the will of Mr. Mortimer Harris of Brixton, £2000 are bequeathed to King Edward's Hospital Fund, £1000 to the Brompton Hospital for Consumption, and £1000 to the Children's Hospital in Great Ormond-street.—Mr. George Vacher of Surbiton has under his will bequeathed £100 to the Westminster Hospital, £100 to the Westminster Ophthalmic Hospital, and £50 to the Western Dispensary, Rochester-row.

ROYAL LONDON OPHTHALMIC HOSPITAL.—The annual general meeting of the governors of this institution was held recently, Mr. H. P. Sturgis presiding. The chairman said that in the past year the attendances had considerably increased and 18 beds which were opened through the liberality of King Edward's Hospital Fund were at once occupied. During the present year they had been enabled to open another 30 beds, also through the liberality of King Edward's Hospital Fund, and the number of available beds at the present time was 118. Turning to the question of finance, he pointed out that the deficit for this year was £5400, against £5100 in the previous year. This deficit was chiefly due to the loan obtained in 1901 from the Charity Commissioners in order to keep the hospital going at that time. One serious item in the expenses was the rates, which had increased to nearly £1000 a year. In common with a great many other managers of hospitals they felt that hospitals should be relieved from paying rates and were taking steps to get this rectified. The total expenditure last year amounted to nearly £12,000 and in the current year it would be rather more on account of the extra beds which had been opened. They required £6000 more from donations and subscriptions in order to make both ends meet and they were anxious to get special donations towards a fund for paying off the loan from the Charity Commissioners and also towards a fund of about £50,000 to guarantee their rent of £1200 a year. They had so far received £1200 towards the latter fund.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Royal Commission on Arsenical Poisoning.

THE following statement appears in the Estimates with regard to the progress of the inquiry by the Royal Commission on Arsenical Poisoning—viz., "The Commission were appointed on Feb. 4th, 1901, and after holding 18 public sittings and examining 51 witnesses, issued a first report which was presented to Parliament in July, 1901. Since the issue of this first report the Commission have held a number of additional public sittings and have examined other 27 witnesses. They have also received reports from their assistant commissioner and have instituted chemical inquiries as to the presence of arsenic in articles of food and drink other than beer; as to arsenic in malting food; and as to other matters referred to them. The Commission expect to complete taking evidence early in 1903 and it is anticipated that their scientific inquiries will soon afterwards be completed. In these circumstances the Commission hope to be able to conclude their proceedings and to present their final report before the end of the financial year 1903-04." In the Estimates the financial provision made is: For

salaries, £480; for travelling expenses, £100; for shorthand writing, £200; for incidental expenses, £80; and for scientific investigations, £400.

HOUSE OF COMMONS.

WEDNESDAY, MARCH 11TH.

Pay of the Royal Army Medical Corps in India.

Dr. FARQUHARSON asked the Secretary of State for India whether the rates of pay of officers of the Royal Army Medical Corps in India sanctioned by the Government of India in accordance with the Royal Warrant of March 28th, 1902, were now being received by those officers; and, if not, when the new rates would come into force.—Lord GEORGE HAMILTON replied: The increased rates of pay of lieutenants and captains of the Royal Army Medical Corps serving in India take effect from Nov. 24th last.

THURSDAY, MARCH 12TH.

Superannuation for Poor-law Officers in Scotland.

On the motion of Mr. MAXWELL a Bill was introduced and formally read a first time to provide for superannuation allowances to Poor-law officers in Scotland.

Death Certification.

Mr. WEIR asked the Lord Advocate, in view of the opinions expressed in regard to death certificates in the Report of the Cremation Committee recently issued, would the Secretary for Scotland consider the expediency of introducing legislation at an early date relative to death certificates in Scotland, especially having regard to the fact that the last published returns showed that out of 6620 deaths in the Highland crofting counties in one year no less than 1479 were uncertified.—The LORD ADVOCATE replied: The Secretary for Scotland cannot at present undertake to introduce legislation on this subject.

MONDAY, MARCH 16TH.

Local Authorities and the Treatment of Consumption.

Mr. CAMERON CORBETT asked the Lord Advocate if local authorities in Scotland were empowered to make provision for the treatment of consumption as an infectious disease.—The LORD ADVOCATE replied: Having in view the general scope of the provisions as to infectious diseases contained in the Notification Act and the Public Health Act, the employment of public funds by the local authority in the way suggested by the honourable Member would raise a legal question affecting the ratepayors on which, as I have no authority to determine it, I must respectfully decline to give an opinion.

The Examination of Imported Milk.

Sir EDWARD STRACHEY asked the Chancellor of the Exchequer whether he would state what was the amount of preservative, and what kinds of preservatives were found in the samples of fresh and sterilised milk imported from abroad and examined at the Government laboratories during 1902.—Mr. RITCHIE replied: The samples of fresh and sterilised milk in question, with the exception of those taken from frozen milk, in which preservatives are not employed, were all examined for boric preservatives and for formalin, but in no case was either preservative detected.

TUESDAY, MARCH 17TH.

No Death Certification Bill this Session.

Sir WALTER FOSTER asked the President of the Local Government Board whether his attention had been directed to the recent report of a departmental committee on the regulations to be made under the Cremation Act, 1902, and to the views expressed by the committee as to the defects of the present system of death certification; and whether he would introduce a Bill during the present session to carry out the recommendations of the Select Committee of 1895 on Death Certification.—Mr. LONG replied: I am aware of the report of the departmental committee referred to by the hon. Member. The recommendations of the Select Committee on Death Certification have been under my consideration, but I am afraid that I do not see any prospect of my being able to introduce a Bill on the subject during the present session.

Alum in Baking Powder.

Mr. PRICE asked the Home Secretary whether his attention had been drawn to a case tried at Norwich Shirehall on Saturday, March 7th, in which a small general shopkeeper was fined £20 for selling baking powder containing 43·68 per cent. of alum; and whether in view of the statements of the magistrates he could see his way to remitting a part of this penalty.—Mr. AKERS DOUGLAS replied: I understand that the heavy penalty was imposed in the first instance for the purpose of putting a stop to the sale on an extensive scale of a baking powder which the magistrates were advised was highly injurious to health. It appears that later the court saw reason to think that in this particular case a smaller penalty would be sufficient and accordingly fixed it at £2 12s., including costs.

Trinity College, Dublin, and Degrees for Women.

Mr. BRYCE asked the Chief Secretary to the Lord Lieutenant of Ireland whether the governing board of Trinity College, Dublin, had recently applied to His Majesty's Government for authority by means of a King's letter to confer degrees upon women; if so, whether that request had been refused; and if so, what were the grounds of that refusal.—Mr. WYNDHAM replied: The request mentioned has been made. It has not been refused, but some technical difficulties have arisen on the construction of the College statutes which have caused delay. I have every hope, however, that the matter will soon be satisfactorily arranged.

BOOKS, ETC., RECEIVED.

ALCAN, FELIX, 108, Boulevard Saint-Germain, Paris.

Les Obsessions et la Psychasthénie. II. Par le Dr. F. Raymond, Professeur de Clinique des Maladies du Système Nerveux, Médecin de la Salpêtrière, et le Dr. Pierre Janet, Professeur de Psychologie au Collège de France, Directeur de Laboratoire de Psychologie à la Salpêtrière. Price 14.fr.

Recherches Cliniques et Therapeutiques sur l'Epilepsie, l'Hystérie et l'Idiotie. Compte-rendu du Service des Enfants Idiots Epileptiques et Arriérés de Bicêtre pendant l'Année, 1901. Par Bourneville avec la Collaboration de MM. Ambard, Boyer (J.), Crouzon, Morel (L.), Paul-Boncour, Phillipe et Oberhur. Volume xxii. Price Fr. 6.-

BENGAL SECRETARIAT PRESS, Calcutta.

A Brief History of the Hughli District. By Lieutenant-Colonel D. G. Crawford, M.B., Indian Medical Service, Civil Surgeon, Hughli. Published by authority. Price Rs. 1.4; or 1*s.* 10*d.*

BENSON, J. W., Limited, Ludgate-hill, E.C.

Time and Time-tellers. By James W. Benson. Price, post free, 1*s.*

CLARENDON PRESS, Oxford (Henry Frowde, London, Edinburgh, and New York).

On the Physics and Physiology of Protoplasmic Streaming in Plants. By Alfred J. Ewart, D.Sc., Ph.D., F.L.S., Lecturer on Botany in the Birmingham Technical Institute. Communicated to the Royal Society by Francis Gotch, D.Sc. (Oxon.), F.R.S. Price 8*s.* 6*d.* net.

CLAY, C. J. AND SONS, Ave Maria-lane, E.C.

A Historical Companion to Hymns Ancient and Modern: containing the Greek and Latin, the German, Italian, French, Danish, and Welsh Hymns; the First Lines of the English Hymns; the Names of all Authors and Translators; Notes and Dates. Edited by the Rev. Robert Maude Moorsom, M.A., Trinity College, Cambridge. Second edition. Price 5*s.* net.

HIRSCHWALD, AUGUST, Unter den Linden, 68, Berlin, N.W.

Die Kriegsepidemieen des 19. Jahrhunderts und ihre Bekämpfung. Von Dr. Otto Niedner, Stabsarzt an der kaiser Wilhelms-Akademie für das militärarztl. Bildungswesen, kommandiert zur I. mediz. Universitätsklinik zu Berlin. (Bibliothek v. Coler, Band 17.) Price M.5.-

HOLT, HENRY AND COMPANY, New York.

Physical Chemistry for Physicians and Biologists. By Dr. Ernst Cohen, Professor of General and Inorganic Chemistry in the University of Utrecht. Authorised translation from the German by Martin H. Fischer, M.D., Instructor in Physiology in the University of California. Price not stated.

JOHN BALE, SONS, AND DANIELSSON, LIMITED, 83-89, Great Titchfield street, Oxford-street, W.

The Transactions of the Society of Anæsthetists. Volume v.

LEWIS, H. K., 136, Gower-street, W.C.

Practical Handbook of the Pathology of the Skin. An Introduction to the Histology, Pathology, and Bacteriology of the Skin, with Special Reference to Technique. By J. M. H. Macleod, M.A., M.D., M.R.C.P., Assistant in the Dermatological Department, Charing-cross Hospital; Physician to the Skin Department, Victoria Hospital for Children. Price 15*s.* net,

LLOYD, EDWARD, Limited, Salisbury-square, E.C.

The Municipal Year-book of the United Kingdom for 1903. Edited by Robert Donald, editor of the *Municipal Journal* and the *London Manual*. Price 5*s.* 6*d.*

LONGMANS, GREEN AND CO., 39, Paternoster-row, E.C.

The Chemical Changes and Products resulting from Fermentations. By R. H. Aders Plimmer, D.Sc. Lond., Grocers' Research Student, Jenner Institute of Preventive Medicine. Price 6*s.* net.

MALOINE, A., 23-25, Rue de l'Ecole-de-Médecine, Paris.

Recherches Anthropométriques sur la Croissance des Diverses Parties du Corps. Par le Docteur Paul Godin, Médecin-Major de 1re Classe, Médecin-Chef de l'Hôpital (Salles Militaires) de la Fère. Preface par M. le Dr. L. Manouvrier, Professeur à l'Ecole d'Anthropologie de Paris. Price not stated.

La Journée du Tuberculeux. Par M. le Dr. Coste de Lagrave, Médecin du Sanatorium de Gorbio. Price not stated.

ROONEY AND OTTEN PRINTING CO., New York.

Transactions of the Twenty-fourth Annual Meeting of the American Laryngological Association, held at Boston, Mass., May 26th, 27th, and 28th, 1902. Price not stated.

ST. MARTIN'S PRESS, 15, Craven-street, Charing-cross, W.C.

Medicine for the Mind: from the Storehouse of the World' Greatest Thinkers. Price 2*s.* net.

SAMPSON LOW, MARSTON AND CO., Limited.

Twentieth Century Practice. An International Encyclopædia of Modern Medical Science by leading authorities of Europe and America. Edited by Thomas L. Stedman, M.D., New York City. In 21 volumes. Volume xxi., Supplement. Price not stated.

SAUNDERS, W. B. AND CO., Philadelphia and London.

Atlas and Epitome of Diseases of the Mouth, Pharynx, and Nose. By Dr. L. Grunwald of Munich. Second edition, revised and enlarged. Edited, with additions, by James E. Newcomb, M.D., Instructor in Laryngology, Cornell University Medical College. Price 12*s.* net.

Atlas and Epitome of Human Histology and Microscopic Anatomy. By Doctor Johannes Sobotta of the University of Würzburg, Bavaria. Edited, with extensive additions, by G. Carl Huber, M.D., of the University of Michigan. Price 18*s.* net.

SCIENTIFIC PRESS, LIMITED, 28 and 29, Southampton-street, Strand, W.C.

The Uniform System of Accounts for Hospitals and Public Institutions, Orphanages, Missionary Societies, Homes, Co-operations, and all Classes of Institutions, together with an Index of Classification. By Sir Henry Burdett, K.C.B. Price 4*s.* net.

SPOTTISWOODE AND CO., Limited, 54, Gracechurch-street, E.C.

The Medical Register, 1903. Printed and published under the Direction of the General Council of Medical Education and Registration of the United Kingdom. Price 6*s.*

STUBER, A. (C. Kabitzsch), Würzburg.

Die Physikalisch-diätetische Therapie in der ärztlichen Praxis. Von Dr. med. Bernhard Presch, Arzt in Hannover. Lieferung V. Subscriptions-Preis Mk. 2.

UNIVERSITY PRESS, Cambridge (C. J. CLAY AND SONS and H. K. LEWIS, London).

Biometrika: A Journal for the Statistical Study of Biological Problems. Edited, in consultation with Francis Galton, by W. F. R. Weldon, Karl Pearson, and C. B. Davenport. Vol. ii. Part ii. February, 1903. Price 10s. net. (Issued March 5th, 1903.)

WARD, LOCK, AND CO., LIMITED, Warwick House, Salisbury-square, E.C.

Connie Burt. By Guy Boothby. Price 5s.

WRIGHT, JOHN, AND CO., Bristol. (SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LIMITED, London.)

The Medical Annual: A Year-book of Treatment and Practitioner's Index. Twenty-first year. Price 7s. 6d. net.

"First Aid" to the Injured and Sick. An Advanced Ambulance Handbook. By F. J. Warwick, B.A., M.B. Cantab., M.R.C.S., L.S.A., and A. C. Tunstall, M.D., F.R.C.S. Edin. Third and revised edition. Price 2s. 6d.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.*

BERRY, FREDERICK C., B.A., M.D., B.Ch. Dub., has been re-appointed Medical Officer of Health of Burnham, Somerset.

BULLEID, ARTHUR, L.R.C.P., L.R.C.S. Ed., L.F.P.S. Glasg., has been re-appointed Medical Officer of Health for Midsomer Norton.

BURTWOOD, J. W., L.F.P.S. Glasg., L.S.A., has been re-appointed Medical Officer of Health to the Bourne Urban District Council.

COOK, H. F., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer to the Destitute and Aborigines within the township of Redhill, South Australia, and within a radius of twelve miles therefrom.

DOUGLAS, FRANCIS JOHN, M.B., B.S. Melb., of Port Victor, South Australia, has been appointed a Public Vaccinator.

FARRAR, REGINALD A., M.D. Oxon., D.P.H. Cantab., has been appointed a Medical Inspector to the Local Government Board.

FOX, ROBERT ALGERNON, M.B., M.S. Edin., Senior Medical Officer at the Coast Hospital, has been appointed Visiting Medical Officer to the Rookwood and Newington Asylums for the Infirm, New South Wales, Australia.

GRAHAM, EDWARD ALFRED, M.B. Melb., has been appointed Visiting Surgeon to the Gaol at Deniliquin, New South Wales, Australia.

JELLY, G. AUBREY, F.R.C.S. Ed., M.R.C.S., has been appointed Honorary Consulting Ophthalmic Surgeon to the Bury Infirmary.

KEMPE, C. M. M.R.C.S., L.S.A., has been re-appointed Medical Officer of Health to the Shoreham Urban District Council.

LAFAGE, C. P., M.B., Ch.B. Vict., has been appointed Junior Resident Medical Officer to the Manchester Children's Hospital, Pendlebury.

LEICESTER, J. C. HOLDICH, M.D., B.S., F.R.C.S., Captain I.M.S., has been appointed to act as Resident Surgeon to the Eden Hospital for Women, Calcutta.

MACKINNON, CHARLES, M.B., C.M. Glasg., has been appointed Medical Officer for the Southern District by the Cirencester B and of Guardians.

MAITLAND, H. L., M.B., Ch.M. Syd., has been appointed Honorary Surgeon to the Sydney Hospital.

MORGAN, THOMAS WHITWORTH SEWELL, M.R.C.S., L.S.A. Lond., has been appointed Medical Officer for the Camerton District by the Clutton Board of Guardians.

MORSE, EDWARD, L.R.C.P., L.R.C.S. Edin., has been appointed Medical Officer of Health for Great Torrington (Devon).

MURRAY, JOHN, M.B., C.M. Glasg., has been appointed Medical Officer of Health for Llandrindod Urban District Council.

NEWSOME, HERBERT, M.B., B.S. Durh., has been appointed District Medical Officer for Pill (Somerset) by the Long Ashton Board of Guardians.

PALMER, A. M., L.R.C.P. Edin., M.R.C.S., has been re-appointed Medical Officer of Health to the Whittington Urban District Council.

STAMFORD, R. B., F.R.C.S. Edin., L.R.C.P. Lond., M.R.C.S., has been appointed Honorary Medical Officer to the Loughborough and District Hospital and Dispensary.

SYMPSON, E. MANSEL, M.A., M.D., B.C. Cantab., M.R.C.S., has been elected Consulting Surgeon to the Lincoln General Dispensary.

THOMAS, J. TELFER, M.R.C.S., L.R.C.P. Lond., has been re-appointed Medical Officer of Health to the Camborne (Cornwall) Urban District Council.

WATKINS, H. E., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon, under the Factory Act, for the Newton-le-Willows District of the County of Lancaster.

WILLIS, J. G., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Medical Officer of Health for the Rural District of Auckland, Yorkshire.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ADDENBROOKE'S HOSPITAL, Cambridge.—Assistant House Surgeon for six months. Salary at rate of £30 per annum, with board, lodging, and washing.

ALDERSHOT URBAN DISTRICT COUNCIL.—Medical Officer of Health. Salary £300 per annum.

BIRMINGHAM AND MIDLAND FREE HOSPITAL FOR SICK CHILDREN.—Resident Medical Officer; also Resident Surgical Officer. Salary in each case £80 per annum, with board, washing, and attendance.

BRISTOL GENERAL HOSPITAL.—Surgeon or Physician; also Assistant Honorary Anæsthetist.

EBBW VALE WORKMEN'S DOCTORS' FUND.—Surgeon. Salary £500 per annum net.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark, S.E.—Medical Radiographer. Honorarium £25 per annum.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Resident House Physicians for six months. Honorarium of £25.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Parkplace, Cheetham Hill-road.—House Surgeon. Salary £80 per annum, with apartments and board.

MANCHESTER, OWENS COLLEGE.—Junior Demonstrator in Physiology. Salary £100, rising to £150 per annum.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—Anæsthetist. Honorarium 25 guineas per annum.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury.—Junior House Physician. Salary £50, with board and apartments.

NORTH-EASTERN HOSPITAL FOR CHILDREN, Hackney-road, N.E.—Resident Medical Officer. Salary £120 per annum, with board, residence, and washing. Also Casualty Officer. Salary at rate of £100 per annum, with lunch.

NORTH RIDING INFIRMARY, Middlesborough-on-Tees.—Assistant House Surgeon, unmarried.

OXFORD, WARNEFORD ASYLUM.—Assistant Medical Officer. Salary £100, with board, &c.

PADDINGTON INFIRMARY.—Clinical Assistant and Second Assistant to the Medical Superintendent, unmarried, for six months. Honorarium of £36, with board, lodging, and washing.

ROTHERHAM HOSPITAL AND DISPENSARY.—Assistant House Surgeon. Salary £80 per annum.

ROYAL EYE HOSPITAL, Southwark, S.E.—House Surgeon for six months, renewable. Salary at rate of 50 guineas per annum, with board and residence.

ST. MARK'S HOSPITAL FOR FISTULA AND OTHER DISEASES OF THE RECTUM, City-road, London, E.C.—House Surgeon. Salary £80 per annum, with board, lodging, and washing.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone-road, N.W.—Clinical Assistants.

SUSSEX COUNTY HOSPITAL.—House Physician, unmarried. Salary £80 per annum, with board and residence.

TIVERTON, DEVONSHIRE, INFIRMARY AND DISPENSARY.—House Surgeon. Salary £80 and all found.

UNIVERSITY OF DURHAM COLLEGE OF MEDICINE, Newcastle-upon-Tyne.—Lecturer on Ophthalmology.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Physician for six months. Honorarium of £25, with board and lodging.

WESTERN DISPENSARY, Rochester-row, Westminster, S.W.—Medical Officer.

WEST HAM HOSPITAL, Stratford, E.—Junior House Surgeon. Salary £75 per annum, with board, residence, &c.

WOLVERHAMPTON EYE INFIRMARY.—House Surgeon. Salary £70 per annum, with rooms, board, and washing.

Births, Marriages, and Deaths.

BIRTHS.

EDGE.—On the 18th inst., at 54, Darlington-street, Wolverhampton, the wife of Frederick Edge, M.D., F.R.C.S., B.Sc., M.R.C.P., of a son.

HERBERT.—On March 14th, at Croxteth-road, Sefton-park, Liverpool, the wife of Major H. Herbert, I.M.S., of a daughter.

SHARPLES.—On March 11th, at Greenhithe, Kent, the wife of M. W. Sharples, M.B. Aberd., of a daughter.

MARRIAGES.

GOWANS—ANGUS.—On March 12th, at West Coates parish church, Edinburgh, Thomas Gowans, M.B., Ch.B. Edin., to Mary Berta, daughter of Robert Angus.

PLUMMER—BEVERLEY-BIRD.—On March 16th, at Batheaston Church, Somerset, by the Rev. A. M. Downes, vicar, Edgar Curnow Plummer, M.R.C.S. Eng., L.R.C.P. Lond., elder son of the late George Plummer, M.A. Lond., of Thame, to Constance Beverley, daughter of Captain and Mrs. Beverley-Bird, of Clifton, and formerly of Norton Hall, Somerset.

DEATH.

BARRON.—On March 4th, at Buenos Ayres, Alexander Barron, M.B., formerly Professor of Pathology, University College, Liverpool.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE DEATH OF MISS ELLEN MARY SHARP, M.B. LOND.

To the Editors of THE LANCET.

SIRS,—By merest chance I, a layman, have come across THE LANCET of March 7th containing (at p. 699) a notice of the circumstances attending my daughter's death at the Victoria Hospital, Hull; and as you "endorse the view of the jury that his [my] attitude was reprehensible" I am sure you will kindly allow me to make some categorical corrections and explanations in regard thereto.

Let me state to begin with that Dr. J. C. Molson is in no way concerned in the charges I preferred and which had reference entirely to occurrences before that gentleman appeared on the scene. Explicitly, I say that he did not tell me that my daughter had been wrongfully treated and my charges contained no such complaint against the medical management of the case, for not being a medical man I am not competent to criticise medical methods. I perceive, Sirs, that you have been rather misled by what the coroner "considered" to the contrary, there having been no evidence in support of his statement, emanating entirely from his own imagination, that "Dr. Molson must have told Mr. Sharp that his daughter had been wrongfully treated." I am very glad to have this opportunity of publicly relieving Dr. Molson of an unwarrantable aspersion upon his professional character. What I did complain of was indifference and neglect and of an absence of solicitude on the part of the honorary staff in regard to their paid colleague's serious illness in its early stages. As you remark, those statements were categorically contradicted, but I fail to see that they were disproved.

Becoming uneasy from the reports—unsatisfactory because vague—that reached us in the extreme south of England, we, after having to begin with felt that the illness of our daughter, a strong and very healthy young woman, could not possibly reach a dangerous stage, surrounded as we assumed her to be with the united and kindly skill of the honorary medical staff—and I am not ignorant in these matters—I suddenly felt myself impelled to send down my own medical attendant to Hull. Knowing the responsibility I was placing on him and feeling that the case had become a dangerous one, I did no more than my duty in giving him, as against all eventualities, a letter investing him with my entire confidence. But, as you point out, it was already too late, as also was "too late" the constant and special nursing attendance that had not been ordered at first and, as I now ascertain was, as regards night nurse, only ordered when my younger daughter (whom the hospital authorities had asked for "to relieve us of the responsibility") requested it on her arrival, saying that it could be at my expense. I did not attend the adjourned inquest for valid reasons with which there is no need to trouble you; Dr. Molson did not attend for the very good reason that the coroner did not subpœna him, and as far as I was concerned he has no evidence to offer. The coroner not only charged me with slandering the hospital, he suggested that I should be prosecuted therefor. I have been hopefully awaiting the initiation of proceedings, for in a court of law facts come out.

Not attempting, Sirs, to make you or your columns into a court of appeal I have refrained from saying much that I might have said but which you might have objected to. The point at issue is not between any medical man and the hospital authorities but between them and me. In conclusion, it may not, perhaps, be out of place for me to say that having had three uncles, four first cousins, and two sisters, in addition to my late daughter, in the profession, my sympathies are naturally with it; and thanking you for the courtesy of your space,

I am, Sirs, yours faithfully,

March 16th, 1903. HENRY SHARP.

A SMOKE-WASHING APPARATUS.

WE have had an opportunity of witnessing a trial of a smoke-washing apparatus which has been placed on the roof of Romano's Restaurant in the Strand, London. A similar apparatus is being fixed in the basement of the Imperial Restaurant in Regent-street, but owing to building operations its application has been temporarily suspended at that place. This is to be regretted, as it is stated that the apparatus does its best work when attached to the lower portion of a chimney, as the fan contained in the apparatus so regulates the draught that chimneys are not required. The inventor is Professor Giovanni Mugna of Forli, Italy, who claims for his patent that it deprives the smoke of all those qualities which are objectionable, whether from the point of view of health or of cleanliness. It consists of a metal cylinder at the top of which are openings for the ingress and egress of smoke. A vertical shaft runs through the centre of this cylinder, carrying on its upper portion a centrifugal fan and near its lower end a "whirler" or paddle. Smoke is drawn from the chimney into the cylinder by means of the fan and the whirler mixes it with water contained in the bottom of the cylinder. After being washed the smoke, now almost colourless, escapes from the upper part of the apparatus. This vaporous residue we have not had an opportunity of examining chemically, but the inventor states that it contains only a faint trace of carbonic acid. The following little experiment was made before us. Pieces of wet blotting-paper were held for a few seconds over a chimney leading from a fire where bones and other refuse were being burnt. As might be expected, the paper was quickly covered with soot. The smoke-washing apparatus was then connected with the chimney and clean wet blotting-paper was applied over the washed smoke outlet. On removing the paper only three or four smuts were to be seen. The experiment was repeated several times with similar results; it is fair to state that even the few smuts may have been blown from chimneys in the immediate vicinity. Without any great inconvenience it was quite possible to hold the head over the smoke outlet when only a faint odour resembling burning wood could be perceived. On the residue at the bottom of the cylinder being drawn off it was seen to be a thick fluid of ink-like blackness, giving off a strong odour of smoke. The apparatus is worked by a small electric motor of about one horse-power. In a building where some sort of motive power is already in use no special motor is required and an electric motor can always be used where a continuous current is supplied. The machine itself only requires to be emptied once or twice a day. We understand that the apparatus is already in use in Italy. The London address of the patentee is 8, Denmark-street, Charing Cross-road, London, W.C. We have said enough to show that the apparatus is one that deserves careful trial. If it should prove that it is capable of doing a fair proportion of what is claimed for it by its inventor it ought to effect an appreciable difference in the atmosphere of any towns where it may be used.

A WARNING.

To the Editors of THE LANCET.

SIRS,—Would you kindly allow me a portion of your valuable space to warn members of the medical profession against a man calling himself "Mr. Frank Cresswell." He came to see me about 9.30 P.M. on March 9th. He informed me he was a son of the late Mr. F. J. Cresswell, M.R.C.S., L.R.C.P., who died in 1877. He further informed me that he knew nobody to whom he could apply for any reference as he was alone in the world. He did, however, after some pressing, give me the address of a Dr. Hugh Mackintosh living in Onslow-gardens, but who, he informed me, was abroad. I said that I would write to Dr. Mackintosh, and that if Mr. Cresswell would come to see me on Monday the 16th, I would let him know Dr. Mackintosh's answer. On calling at the address given me by Mr. Cresswell as that of Dr. Mackintosh I found that he did live there but that he was away. I therefore wrote to him and received the following reply, which I have his permission to publish:—

Hotel Rose, Wiesbaden, 12th March, 1903.

DEAR SIR,—In reply to your letter received this morning respecting Frank Cresswell, I know nothing of him or his late father and only hope he may not make use of my name to anyone as a reference. Thanking you for your letter,

I am, yours faithfully,

HUGH MACKINTOSH,
of 12, Onslow-gardens, S.W.

Needless to say, Mr. Cresswell has not kept his appointment with me for to-day.

I am, Sirs, yours faithfully,

Onslow-crescent, S.W., March 16th, 1903. H. P. CHOLMELEY.

LETTERETTES.

LETTERETTES consist of pieces of paper so shaped that they can be readily folded as a letter when side flaps turn over and play the part of an envelope. They are furnished in "tablets" of 50 forms in a blotting-paper cover and are extremely handy and reasonable in price. The name that has been given to this newest development of convenience in stationery is a revolting one to all who have a feeling for the development of the English language, but it is vain to expect the proprietors of manufactured goods to respect etymology. Letterettes are supplied by Messrs. John Walker and Co., Limited, of Warwick-lane, London, E.C., who also keep leather cases to hold the tablets.

"THE UNCROWNED KING OF THE APPENDICITIS PILL."

SHORTLY before last Christmas an inquest was held by Mr. Schröder upon the body of a chambermaid at a hotel in the Tottenham Court-road, with the result that a verdict was brought in by the jury of death through an illegal operation. Prior to the reception of the deceased at Middlesex Hospital she had been attended by an unqualified person named Caleb Whitefoord, living in Upper Marylebone-street. Mr. Schultess Young represented Whitefoord, a detective inspector very properly watched the case for the police authorities, and the verdict, which followed upon the clearest medical evidence, added that there was no evidence to show by whom the crime had been committed. Shortly after this episode a paragraph appeared in certain papers detailing a fracas that had arisen outside "a west-end physician's consulting rooms." The west-end physician was also a man named Whitefoord, whose address as given in the *Echo* was Upper Marylebone-lane, Great Portland-street. "Dr. Whitefoord's complaint was that while he was attending to a female patient a man proceeded to make atrocious insinuations" which caused a crowd to assemble. It is probable that the persons were identical and that the "west-end physician" is the same unqualified person who was concerned in the inquiry into the death of the chambermaid. We mention this episode only to show how careless some lay papers are in their attribution of medical titles to all sorts

of people. Our attention about this time was pointedly drawn to "Dr." Whitefoord as we received letters from a Mr. G. Magin, signing himself "Secretary" and writing from 31, Upper Marylebone-street, requesting information concerning our advertisement rates and inclosing quack literature of more than usual idiotcy and impudence extolling the "Pills of Gold" of "Dr. Whitefoord" the "Uncrowned King of the Appendicitis Pill." Mr. Schultess Young may be interested to know that in one of the leaflets a testimonial from him is included which runs as follows:—

"Testimonial from Schultess Young, Esq., Barrister-at-law, 2, Essex Court, Temple, E.C.

To Dr. Whitefoord,

'If you trade in these pills you have a great future before you.'"

Whitefoord's activity has recently taken the form of writing to members of the Royal Family. A day or two ago a correspondent forwarded to us a copy of the *St. Pancras Chronicle* of March 7th which, under the heading "Royal Correspondence," contains letters from Whitefoord, Magin, and Viscount Crichton of some interest to those who care to make a study of the methods of unblushing charlatanism. The letter placed first in this "Royal Correspondence" is from C. E. Whitefoord, "per Geo. Magin, Sec.," who writes on March 4th to Her Royal Highness the Princess of Wales in terms that are as ridiculous as fulsome. He asks that an old soldier may be paraded before their Royal Highnesses the Prince and Princess of Wales and their children because he had previously been paraded before the Duchess of Kent, Queen Victoria, and the King. No answer seems to have been received. The other letters are all dated in February. On Feb. 16th the old soldier, through G. Magin, Secretary, thanks Lord Crichton for referring his claim for deferred pay to the adjutant of the regiment. G. Magin also submits for Lord Crichton's consideration some information from "Dr. Whitefoord," and, we think, some pills which that person has for sale. At any rate, Lord Crichton writes on Feb. 26th to "Dear Dr. Whitefoord" and says "many thanks for the pills." On Feb. 28th G. Magin, secretary, writes to His Royal Highness the Prince of Wales and repeats his silly request that the old soldier may be paraded before His Royal Highness and Prince Edward of York, this letter being followed by an announcement that Lord Crichton has permitted Dr. Whitefoord to use his name in connexion with his latest speciality, "the Crichton perfume." We advise Lord Crichton not in his good nature to let persons like "Dr." Whitefoord and his secretary have a chance of quoting his name in support of any of their actions or wares. There is no medical man named Whitefoord on the Medical Register now. A practitioner named Caleb Charles Whitefoord was erased from the Register on Nov. 28th, 1891, in consequence of his having been convicted at the Old Bailey upon a charge of procuring abortion. He was sentenced to five years' penal servitude (THE LANCET, Nov. 28th, 1891, p. 1241), and the evidence that the person who is addressing, per G. Magin, the Prince and Princess of Wales and their equerry-in-ordinary is this same man appears to us very strong. In the Post Office Directory, 31, Upper Marylebone-street, Great Portland-street (there is no such place as Upper Marylebone-lane) is stated to be inhabited by Caleb Charles Whitefoord, accoucheur. The names are very unusual ones; "Dr." Whitefoord's description in the Post Office Directory is luridly significant; while newspaper reports show that he carries on unqualified medical practice. We recommend this person to the notice of the police. Whether he is or is not the person who was convicted he is carrying on the business of a quack with insolence that ought to be restrained, and the Princess of Wales ought to be protected from communications from him.

OFFICIAL NOMENCLATURE.

To the Editors of THE LANCET.

SIRS,—I was astonished to find to-day that in signing a death certificate I was not allowed to use the words "uræmic poisoning" as a cause of death. On referring to the official nomenclature I find that the word "uræmia," or any variation thereof, is not to be found in either index. It is, however, to be found on p. 33 as describing a special form of eclampsia. But this would not have done in my case, which was one of uræmic coma. The word "coma" is also, I find, wanting in the index. I suppose I am getting old-fashioned, but I cannot but think that uræmia and coma are each terms possessing scientific definiteness. I am, Sirs, yours faithfully,

Stamford-street, S.E., March 5th. H. W. KESTEVEN.

*** The terms "uræmic poisoning" and "coma" are regarded as symptoms only, either of them being possibly due to one of several causes. It is obviously desirable in framing certificates of death for State purposes that definite diseases rather than mere symptoms or groups of symptoms should be mentioned, and it is for this reason, we believe, that the names referred to have been omitted from the Official Nomenclature of the Royal College of Physicians of London. —ED. L.

INFECTIVITY OF THE MILK OF TUBERCULOUS COWS.

MR. J. MCLAUCHLAN YOUNG, F.R.C.V.S., lecturer on veterinary hygiene in the University of Aberdeen, has published in pamphlet form the results of an investigation of the milk of tuberculous cows. The inquiry was conducted under the joint auspices of the Agricultural Department of the University and of the Highland and Agricultural Society. For various reasons it was found expedient to examine cows that were about to be slaughtered. Many such animals were tested and a certain proportion of them reacted to the tuberculin test, but only a few of these happened to be giving milk. When a cow reacted to the test and yielded milk of normal appearance a sample of it was immediately submitted to Professor D. J. Hamilton for bacteriological examination. From various causes the number of conclusive cases was reduced to 18, particulars of which are given in tabular form. Among these there were four cases of tuberculous mammitis, while the remaining 14 cows had no tubercle of the udder but showed the disease principally in the lungs, bronchial glands, and mesenteric glands, and to a less extent in the pleura, mediastinal glands, liver, diaphragm, peritoneum, pharyngeal glands, and spleen. The milk of all 18 cows was centrifugalised and the deposit was inoculated into guinea-pigs. The results were (1) that the milk drawn from the cows suffering from tuberculosis of parts other than the mammary gland possessed no virulence and did not reproduce the disease in guinea-pigs; and (2) that the milk drawn from cows suffering from tuberculosis of the mammary gland in all cases reproduced the disease in guinea-pigs.

M.O.H.—We are unable to say what decision would be given on the point in a court of law, but it seems to us that as the medical man became aware of the cases in the pursuance of his duties as parish medical officer he is entitled to a fee of 1s.

Cornubiensis.—So far as we know there is no book upon the subject but our correspondent will find a scale laid down according to rental in Whitaker's Almanack.

Locum.—If our correspondent agreed to take the post for three guineas a week we fail to see that he has any ground for complaint.

L.S.D.—There is no mention in the Act of any salary to be paid to members of the Board.

ERRATUM.—With reference to the footnote to the preliminary note by Dr. Castellani on the Etiology of Sleeping Sickness published in THE LANCET of March 14th, p. 733, we are asked to announce that the paper, which was not read before the Royal Society, was sent to us for publication by request *of the author*.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (23rd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (5.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.).

TUESDAY (24th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (5.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.) London Throat (9.30 A.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.).

WEDNESDAY (25th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

THURSDAY (26th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (5.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat, (9.30 A.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

FRIDAY (27th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (5.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.).

SATURDAY (28th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (23rd).—MEDICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—8 P.M. Council Meeting. 8.30 P.M. Clinical Cases:—The President: Extensive Rodent Ulcer treated by X Rays. —Dr. W. Ewart: Symmetrical Fatty Swellings in an Adult Woman—perhaps a variety of Dercum's Disease (Adiposis Dolorosa). —Dr. P. Weber: (1) Child with Multiple Congenital Deformities; (2) The Case of Infantile Form of Articular Rheumatism shown on April 14th, 1902.—Dr. C. Chapman: Multiple Cardiac Murmurs.—

Dr. F. J. Poynton: Chronic Rheumatic Arthritis in a Child: Recovery.—Dr. S. E. Dore: Two Cases of Lupus treated by the Finsen Light.—Dr. G. Stewart (for Dr. J. A. Ormerod): (1) Functional Tremor; (2) Syringomyelia.—Dr. H. A. Caley: Arthropathy of Hip and Ankle.

SOCIETY OF ARTS (John-street, Adelphi, W.C.).—8 P.M. Prof. J. A. Fleming: Hertzian Wave Telegraphy in Theory and Practice. (Cantor Lecture.)

TUESDAY (24th).—ROYAL MEDICAL AND CHIRURGICAL SOCIETY (20, Hanover-square, W.).—8.30 P.M. Papers:—Mr. C. W. Ensor and Dr. J. O. W. Barratt: Paroxysmal Hæmoglobinuria of Traumatic Origin.—Dr. A. H. Robinson and Dr. A. Whitfield: A Further Report on the Remarkable Series of Cases of Molluscum Fibrosum in Children communicated to the Society by Dr. John Murray in 1873.

WEDNESDAY (25th).—SOCIETY OF ARTS (John-street, Adelphi, W.C.).—8 P.M. Mr. A. Kitson: Oil Light by Incandescence.

DERMATOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND (20, Hanover-square, W.).—5 P.M. Meeting.

HUNTERIAN SOCIETY (London Institution, Finsbury-circus, E.C.).—8.30 P.M. Pathological Evening.

FRIDAY (27th).—BRITISH ELECTRO THERAPEUTIC SOCIETY.—8.30 P.M. Papers:—Dr. D. Baynes: Cataphoresis.—Dr. G. R. Batten: A System of X Ray and Electro-Therapeutics worked from the Alternating Main.—Dr. J. A. Codd: The Electric Series Bath.

CLINICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8.30 P.M. Papers:—Dr. H. A. Lediard: A Case of Acromegaly.—Mr. H. Marsh: An Affection of the Knee-joint apparently depending on Malaria.—Dr. A. Duncan: A Case of Bilharzia.—Mr. G. H. Makins: Two Cases illustrating the Employment of Invagination and Stitching over Gangrenous Patches of Intestine in Strangulated Hernia.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (23rd).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. G. Little: Clinique. (Skin.) 5.15 P.M. Dr. F. J. McCann: Cancer of the Uterus.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. L. Williams: Diagnosis of Pain in the Teeth.

TUESDAY (24th).—ROYAL COLLEGE OF PHYSICIANS OF LONDON (Pall Mall East).—5 P.M. Dr. A. S. F. Grunbaum: Theories of Immunity and their Clinical Application. (Goulstonian Lecture.)

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. T. Williams: Clinique. (Medical.) 5.15 P.M. Dr. P. Manson: The Diagnosis of Malaria in England.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. S. Taylor: The Medical Anatomy of the Stomach.

WEDNESDAY (25th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. J. Berry: Clinique. (Surgical.) 5.15 P.M. Dr. T. G. Brodie: The Pathology of Asthma.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. S. Taylor: The Medical Anatomy of the Belly.

THURSDAY (26th).—ROYAL COLLEGE OF PHYSICIANS OF LONDON (Pall Mall East).—5 P.M. Dr. T. R. Glynn: On Infective Endocarditis mainly in its Clinical Aspects. (Lumleian Lecture.)

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. J. Hutchinson, jun.: Clinique. (Surgical.) 5.15 P.M. Mr. J. J. Clarke: Deformities due to Nervous Affections.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. S. Edwards: Urinary Cases of Interest.

THE HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Dr. Garrod: Demonstration of Selected Cases.

FRIDAY (27th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. W. Dodd: Clinique. (Throat.) 5.15 P.M. Mr. T. P. Legg: Injuries of the Head and Neck. III.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. Abraham: Cases of Skin Disease.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. II. of 1902, which was completed with the issue of Dec. 27th, and the Title-page to the Volume, were given in THE LANCET of Jan. 3rd.

VOLUMES AND CASES.

VOLUMES for the second half of the year 1902 are now ready. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, March 19th, 1903.

Date	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radiation in Vacuo.	Maximum Temp. Shade.	Min. Temp	Wet Bulb.	Dry Bulb.	Remarks at 8.30 A.M.
Mar. 13	29·92	S.W.	...	95	59	41	44	46	Hazy
,, 14	29·89	E.	...	68	56	43	43	45	Foggy
,, 15	29·80	S.	...	87	52	42	43	47	Cloudy
,, 16	29·64	W.	...	90	53	40	42	45	Cloudy
,, 17	29·82	S.W.	0·02	70	52	41	44	46	Cloudy
,, 18	29·62	N.W.	0·15	89	53	44	42	45	Overcast
,, 19	30·07	WSW	...	69	53	45	48	50	Cloudy

During the week marked copies of the following newspapers have been received: *Engineer, Surrey Comet, Daily Telegraph, Reading Mercury, Westminster Hospital Gazette, Aberdeen Free Press (Weekly), Literary Digest (New York), Scientific American, Sheffield Daily Independent, Westminster Gazette, Aldershot News, Army and Navy Gazette, Echo, Daily Mail, Yorkshire Post, Dublin Express, Hertfordshire Mercury, Sanitary Record, Daily Graphic, Oxford Chronicle, Liverpool Courier, Plymouth Mercury, City Press, Electrical Engineer, Birmingham Daily Post, &c.*

Communications, Letters, &c., have been received from—

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B.—Mr. J. Ffrench Blake, Lond.; Bristol General Hospital, Secretary of; Birmingham University, Secretary of; Messrs. Bailliere, Tindall and Cox, Lond.; Messrs. Bates, Hendy, and Co., Lond.; Birmingham and Midland Children's Hospital, Secretary of; Dr. W. H. B. Brook, Lincoln; Dr. A. E. Bullock, Leamington; Brin's Oxygen Co., Lond.; Dr. J. Cunningham Bowie, Cardiff; Birmingham General Hospital, House Governor of; Mr. R. E. Blount, Paris; Mr. H. E. Brawn, Lond.; Dr. John Barron, Belfast; Messrs. A. A. Baker and Co., Lond.; Mr. C. R. Bartram, North Walsham; Dr. J. Burnet, Edinburgh; Dr. C. W. Buckley, Buxton; Mr. W. Beecham, Lond.; Dr. A. L. Benedict, Buffalo; Mr. W. Brodie, Edinburgh; Messrs. Burroughs, Wellcome, and Co., Lond.; Birmingham School Board, Clerk of; Mr. E. Buckham, Ipswich.

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